

Tools for R&D Professionals

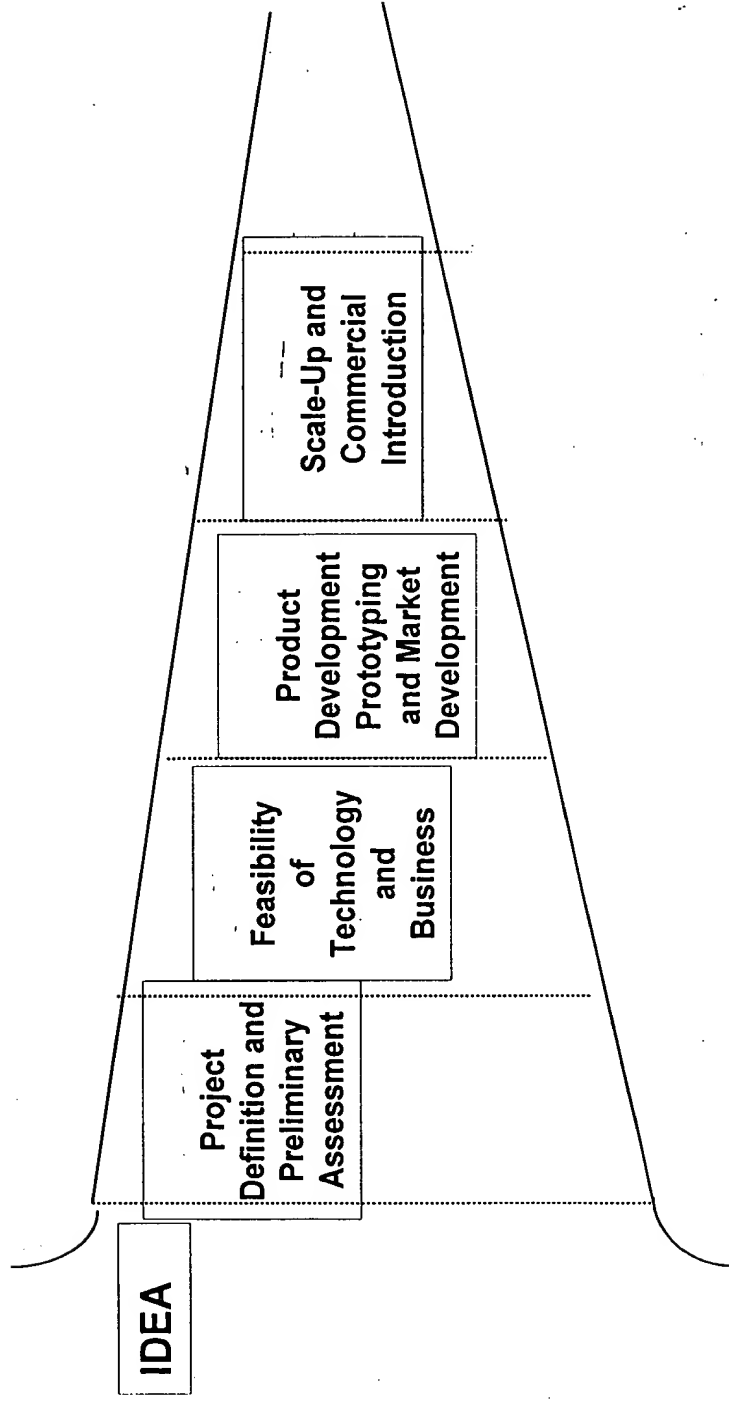


FIG.1

R&D Tools Map

			Idea	Preliminary Assessment	Feasibility	Development	Scale-up	Portfolio
202 ~	Topographic map	Overall view of related art, uses, competitors	1	10	21	33		51
204 ~	Top Company Table	Ranked List of Companies	2					
206 ~	Top Inventor Table	Ranked List of Inventors	3					
208 ~	Inventors by Company Table	Ranked List of Inventors in each Company		11	22			
210 ~	Features Grouping	Overall view of feature set to offer		12	23	34		
212 ~	Technology classification	Which technical fields produce similar feature sets	4	13	24	35	44	
214 ~	SIC classification	Which market segments can use the product / services		14	25	36		
216 ~	Patent count / year	How fast is product / use technology changing	5					
218 ~	Patent count / year	How fast is project technology changing		15	26	37	45	
220 ~	Application count / year	Which other companies are active in project area		16	27	38	46	
222 ~	Technology by Company map	Technical assessment of serious competitors and partners	6	17	28	39	47	
224 ~	Patent Citation Tree	View of which companies can block and/or circumvent other's patents	7	18	29	40		
226 ~	Nested Patent Citation Tree	Prediction of related technology / markets under exploration	8	19	30	41	48	
228 ~	Product / Patent / Revenue Table	Which products, and their revenue stream size, are protected by patents						52
230 ~	Patent, Months to Issue	How long is typical company & patent office cycle time per field			31	42	49	54
232 ~	Document / Annotation	Immediate, linked, searchable documentation of facts and ideas	9	20	32	43	50	55

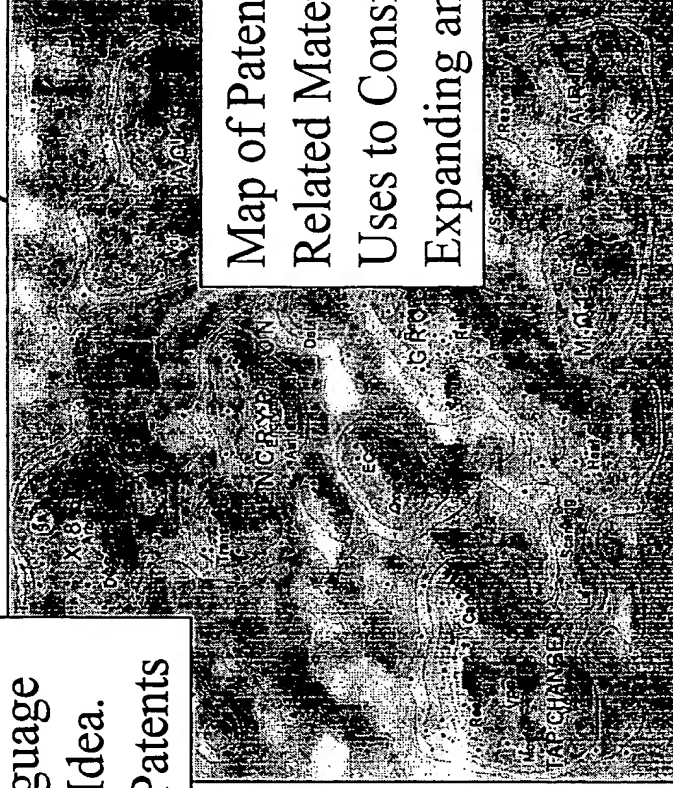
FIG. 2

Tool #1

A Map of Similar Ideas, Art and Markets

Created By: Boolean
and Natural Language
Searches on the Idea.
Group: All US Patents

202



Map of Patent Abstracts Identifies
Related Materials, Processes, and
Uses to Consider When
Expanding and Refining the Idea

Implication: Other People Are Doing Similar Things and Selling Them,
Demonstrating the Idea Is Reasonable From a Technical and Market
Standpoint. The Map Also Allows Sub-groupings for Further Exploration.

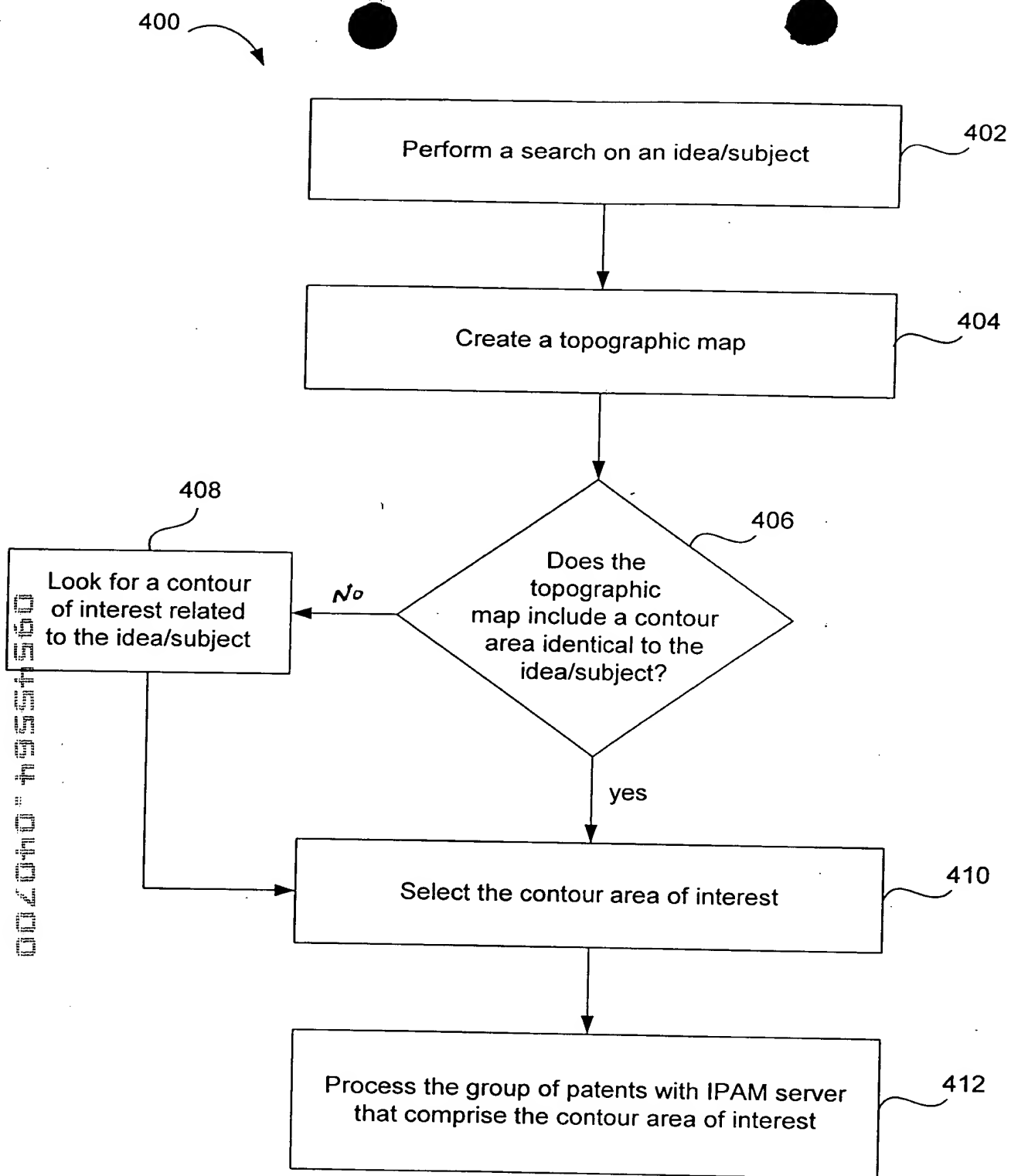


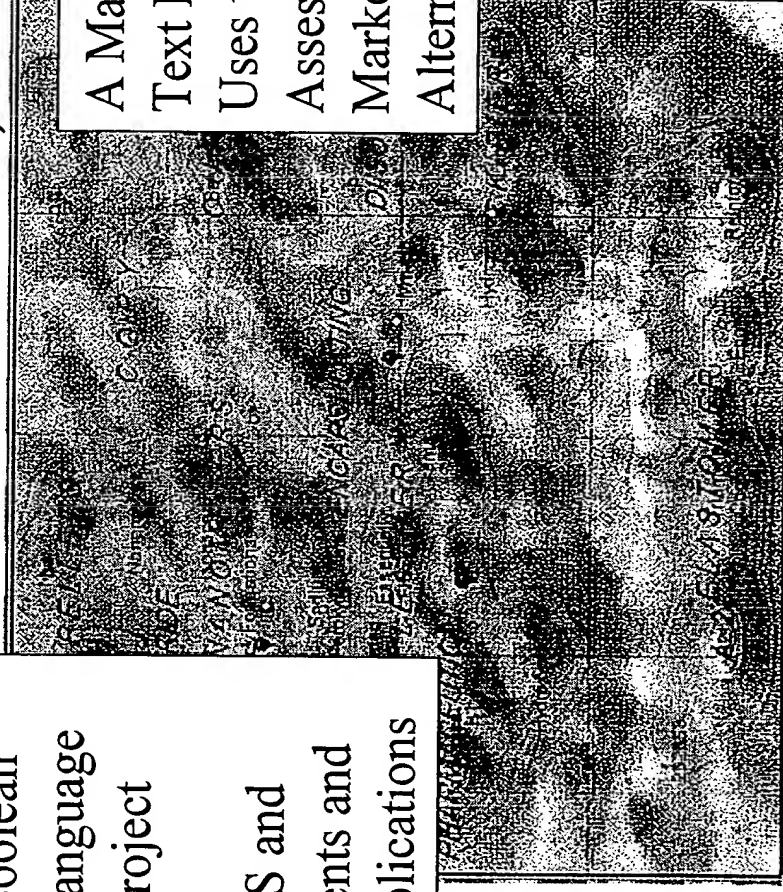
FIG. 4

A Map of Technology and Uses the Project Team Is Focused on Refining

202
4

Created By: Boolean
and Natural Language
Searches on Project
Concept
Group: All US and
European Patents and
European Applications

A Map of Full Patent
Text Identifies Art and
Uses to Consider When
Assessing Feasibility of
Market and Technical
Alternatives



Implication: The Project Team and Management Have a High Level
Map of Technologies and Markets Which Are Feasible to Explore

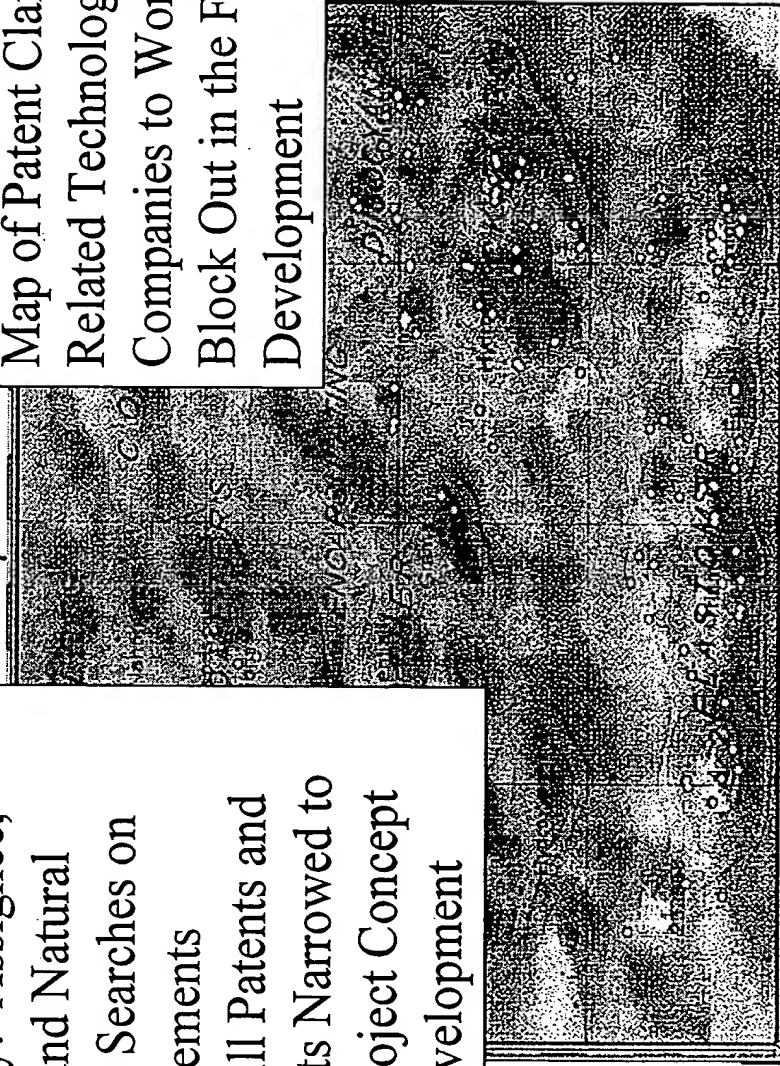
Tool #33

Map of Competitive Technology and Uses

202

Created by: Assignee,
Boolean and Natural
Language Searches on
Project Elements
Group: All Patents and
Documents Narrowed to
Reflect Project Concept
Under Development

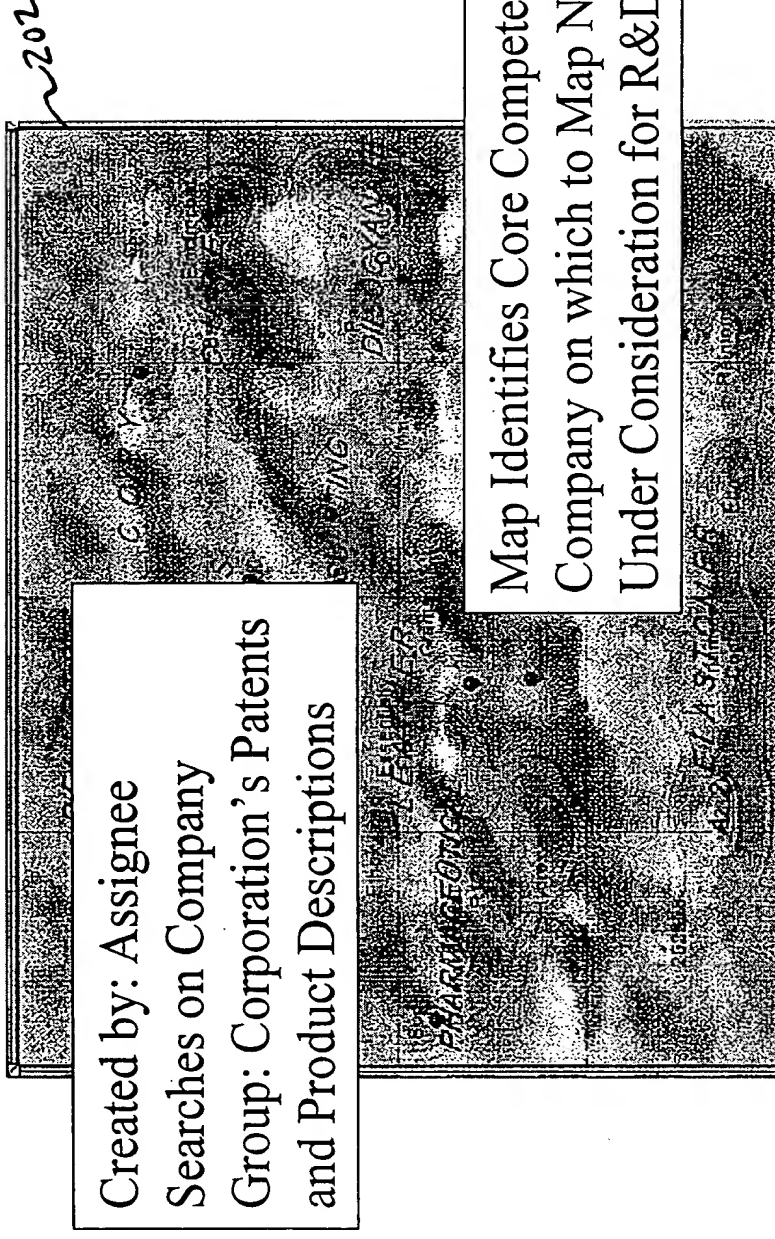
Map of Patent Claims Identifies
Related Technologies and
Companies to Work Around and
Block Out in the Final Stage of
Development



Implication: The Project Team and Management Has a High Level
Map of Technologies and Markets Which Are (1) Under Development
(2) Potentially Competitive

Tool #51

Map of Company Competency & New Projects



Implication: Map Provides Management With a Visual Image of
Core Competencies and Future Directions

Assignee - U.S. Patent Count Report for Microwave Food Heating - US Patents

Assignee	Document Count
Matsushita Electric Industrial Co., Ltd.	81
Raytheon Company	77
General Electric Company	59

Created By: Boolean
and Natural Language
Searches on the Idea.
Group: All US Patents

nc.

represented by the Secretary of the

Table of Assignees Gives New Ideas on Technology and Markets to Consider When Expanding and Refining the Idea

Amana Refrigeration, Inc.

E. I. Du Pont de Nemours and Company

James River Corporation

Champion International Corporation

E. Khashoqal Industries

Minnesota Mining and Manufacturing Company

The United States of America as represented by the Secretary of the

The United States of America
International Paper Company

Sanyo Electric Co., Ltd.

Andrew Corporation

Daewoo Electronics Co., Ltd.

Golden Valley Microwave Foods, Inc.

Corbett Family International Fragrances Inc.

Mobil Oil Corporation

Nabisco Brands, Inc.

The Procter & Gamble Company

Implication: Shows the Quality and Variety of Top Companies Who Are Also Active in Areas Surrounding the Idea

1000

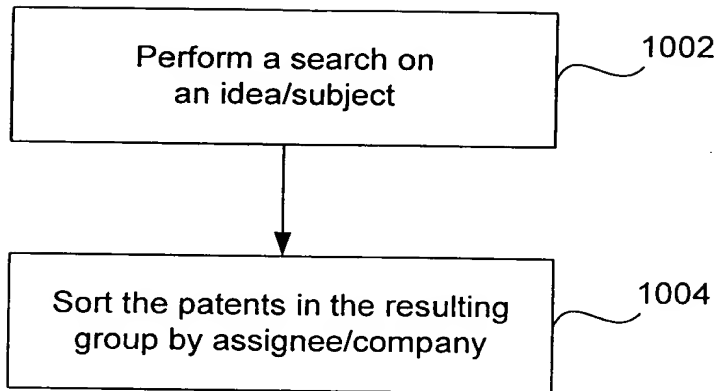


FIG. 10

A Table of Inventors

206

Inventor - U.S. Patent Count Report for Microwave Food Heating - US Patents

Inventor Name	Document Count
Levinson, Melvin L.	21
Hodson, Simon K.	20
	20
	19
	18
	15
	14
	14
	14
	13
	12

Created By: Boolean
and Natural Language
Searches on the Idea.
Group: All US Patents

Kusunoki, Shigeru
Pawlowski, Thomas D.
Seaborn, Jonathan
Lentz, Ronald R.
Simpson, James E.
Watkins, James D.
Byrne, Brian
Dobie, Michael J.
Dudley, Kenneth W.
Fitzmayer, Louis H.
Norris, John R.
Schiffmann, Robert F.
Turpin, Charles H.
Buck, Ronald G.
Colato, Albert E.
Cox, David H.

Table of Inventors Identifies
People Who Have Worked In
This Area on Which to Run
Literature Searches

10
10
10
10
9
9
9

Implication: Shows the Quality and Variety of Top Individuals Who Are
Active in Areas Surrounding the Idea.

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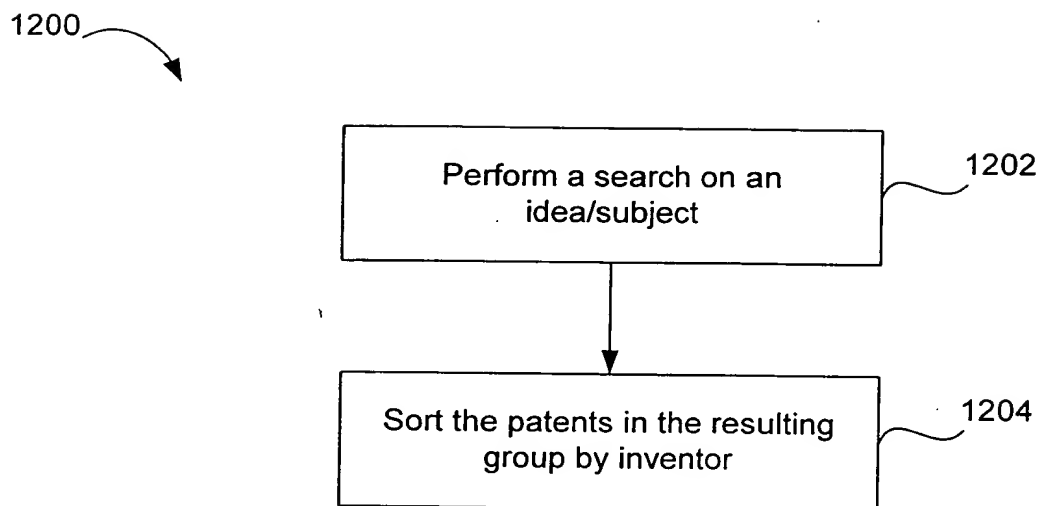
[illegible]

FIG. 12

A Table of Inventors by Assignee

Inventor - U.S. Patent Count by Assignee for Microwave Food Heating - US Patents

Inventor Name	Assignee	Document Count
Levinson, Melvin L.		

Created By: Boolean and Natural Language Searches on the Idea.
Group: All US and European Patents

General Housewares Corporation	20 1 21
E. Khashoggi Industries	17
E. Khashoggi Industries, LLC	2
E. Khashoggi, Industries	1
	20

Patentsmith Corporation
Patentsmith Corporation
Patentsmith II, Inc.
Patentsmith Technology, Ltd.
Smith, Donald P.

Bowen, Robert F.

Raytheon Company

Tanaka, Junzo

Matsushita Electric Industrial Co.

Pesheck, Peter S.

The Pillsbury Company

Brown, Richard K.

James River - Norwalk, Inc.
James River Corporation

Table of Inventors by Assignee
Identifies People Who Have
Worked In This Area on Which
to Run Literature Searches and
Establish Partnership Contacts

Implication: Shows Which Top Individuals, at What Companies, May Be
Resources For The Project Team

1400

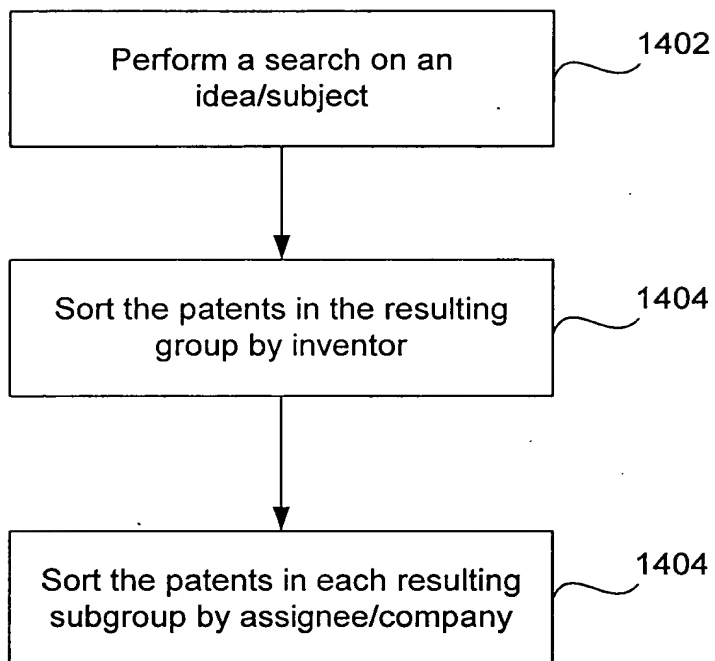


FIG. 14

A Table of Inventors by Assignee

Inventor - U.S. Patent Count by Assignee for Microwave Food Heating - US

Patents

Inventor Name Assignee Document Count

Levinson, Melvin L.

General Housewares Corporation 20
1
21

E. Khashoggi Industries
E. Khashoggi Industries, LLC
E. Khashoggi, Industries

17
2
1
20

Patentsmith Corporation
Patentsmith Corporation
Patentsmith II, Inc.
Patentsmith Technology, Ltd.
Smith, Donald P.

Raytheon Company

Tanaka, Junzo

Matsushita Electric Industrial Co

Pesheck, Peter S.

The Pillsbury Company

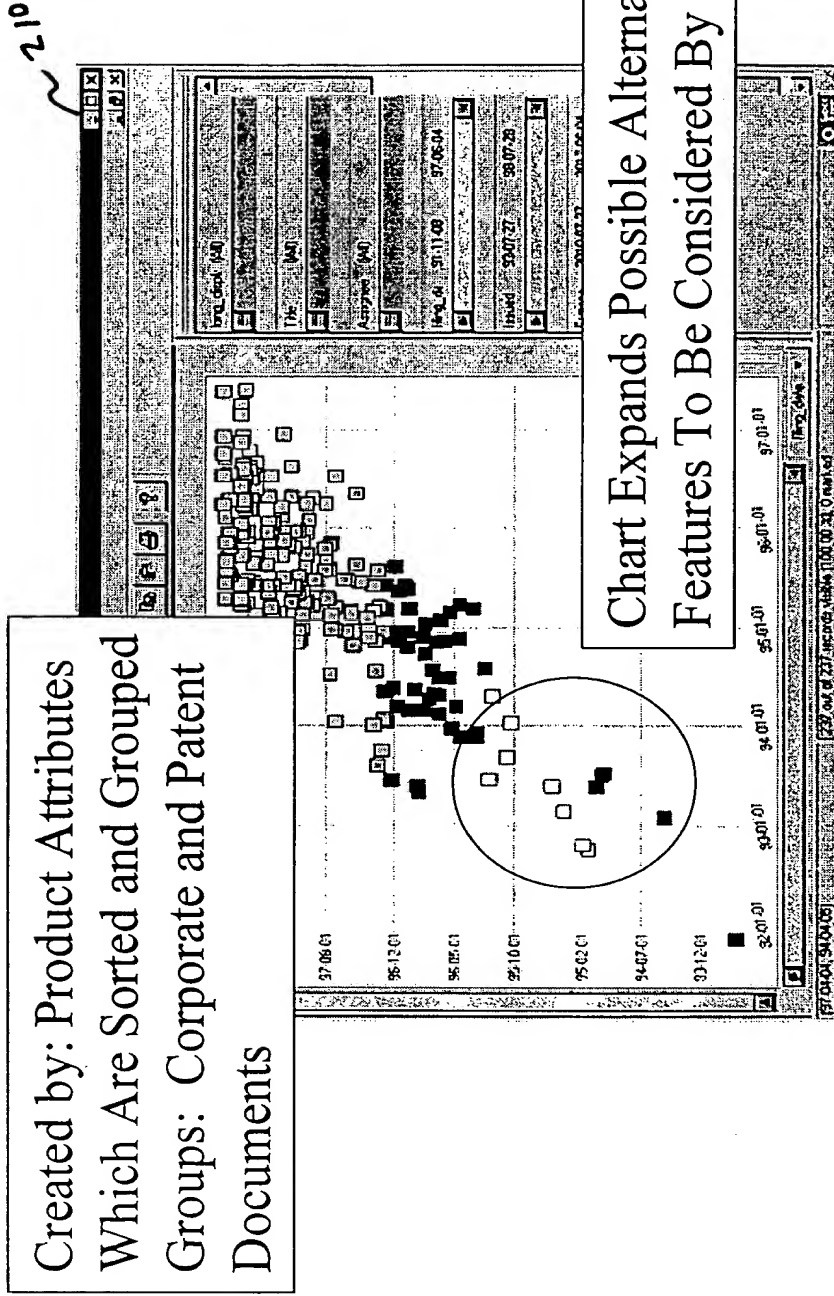
Brown, Richard K.

James River - Norwalk, Inc.
James River Corporation

Implication: Shows Which Individuals May Be Resources For The Project Team, and Which to Commence Competitive Intelligence

Tool #12

Groupings of Proposed Product Features



Implication: Distinctive and Sometimes Known Product Feature Sets Are Uncovered Early in Project

1700

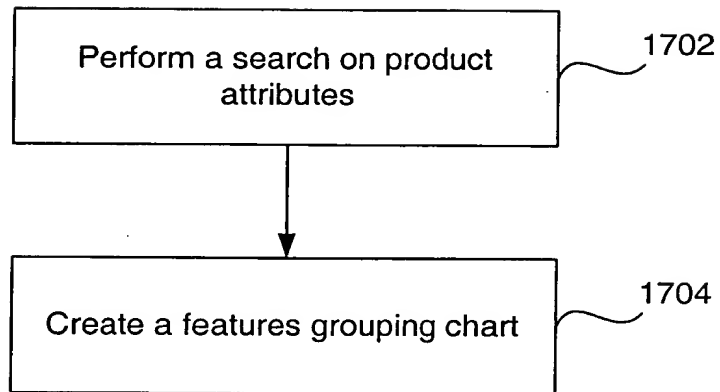
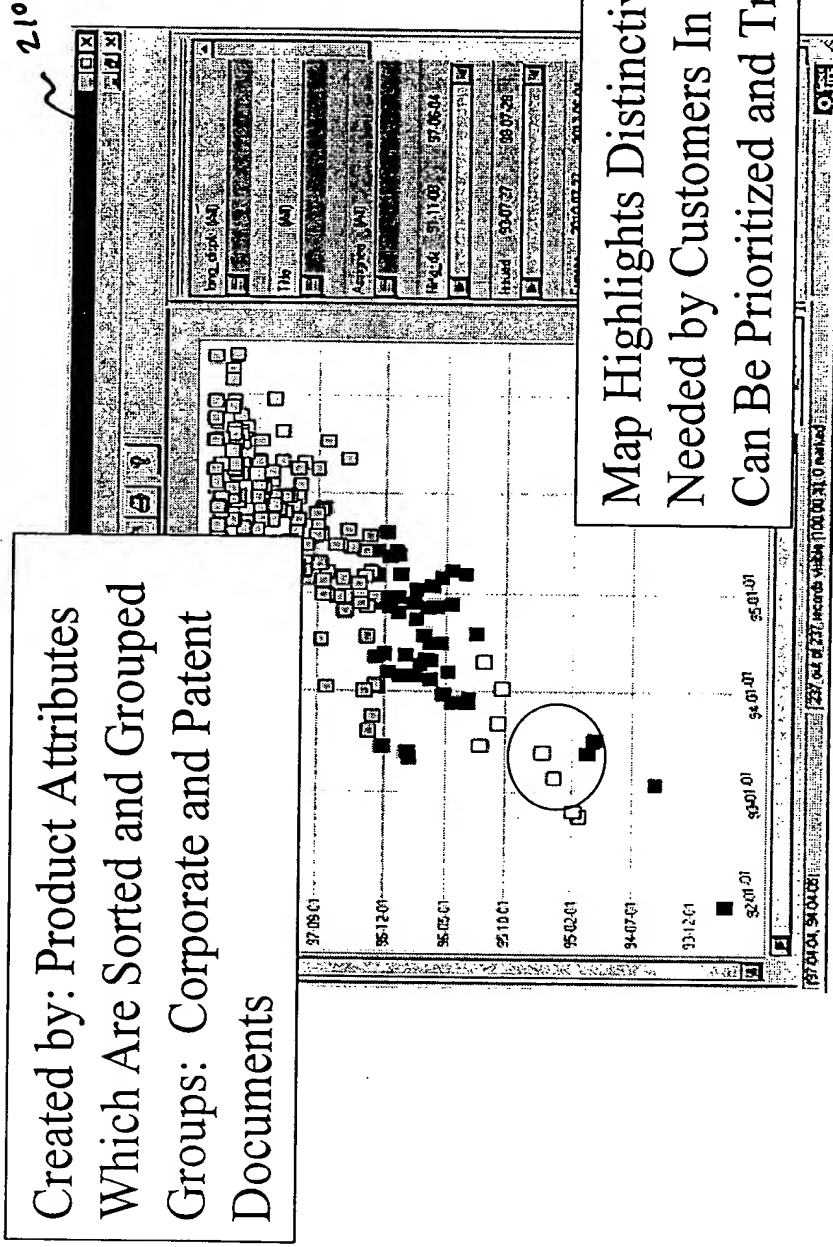


FIG. 17

Tool #23

Map of Which Proposed Product Features Are Feasible



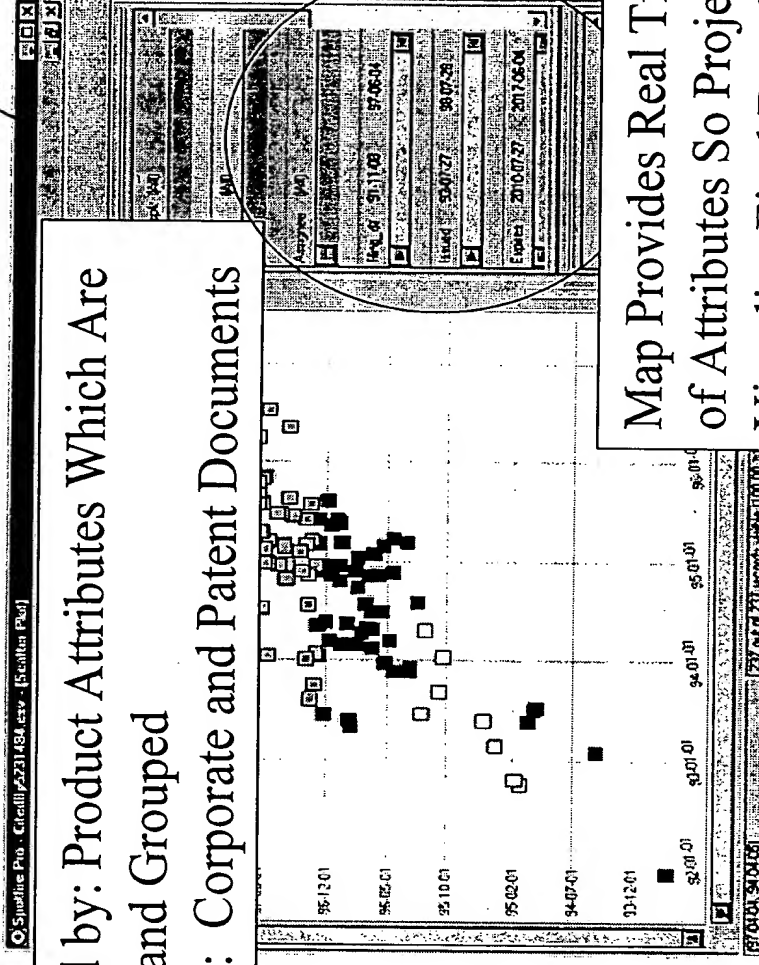
Implication: Product Feature Sets Are Found Early in the
Project Via Previous Internal and Partner's Research

Tool #34

Map of Achievable Product and Service Features

21°

Created by: Product Attributes Which Are
Sorted and Grouped
Groups: Corporate and Patent Documents

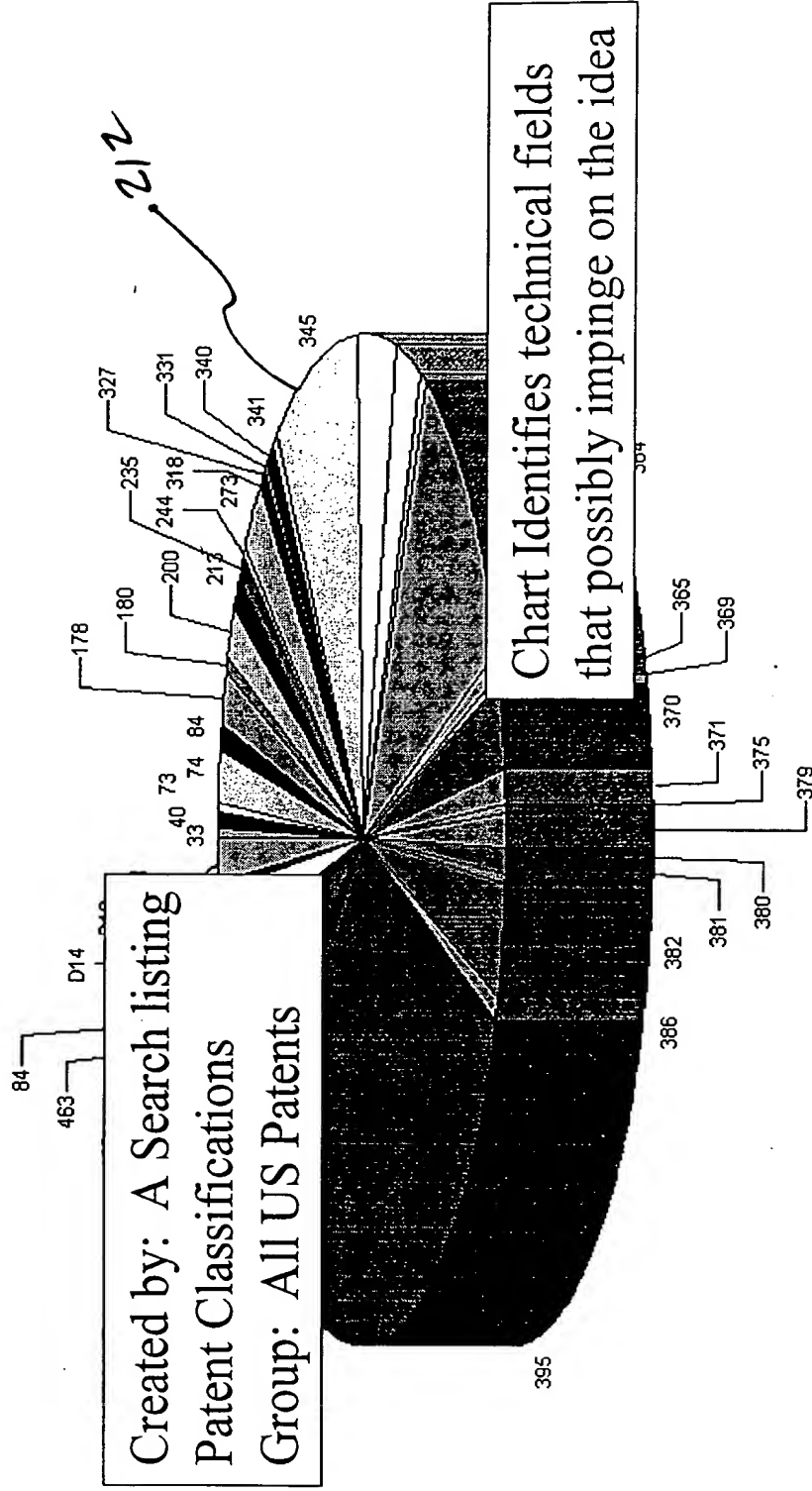


Map Provides Real Time Visualization
of Attributes So Project Team Can
Visualize Final Development Candidates

Implication: Product Feature Sets Are Visualized and Presented to Gate
Review Team In a Dynamic Form

Tool #4

A Chart of Similar Technologies



2100

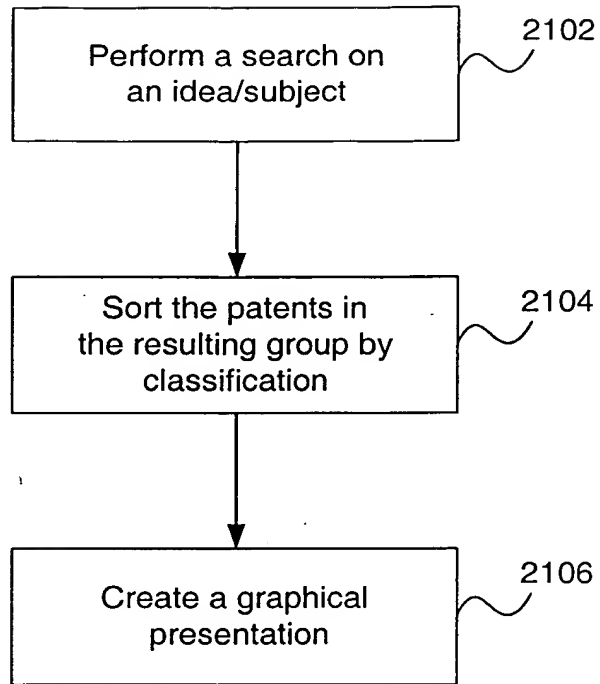
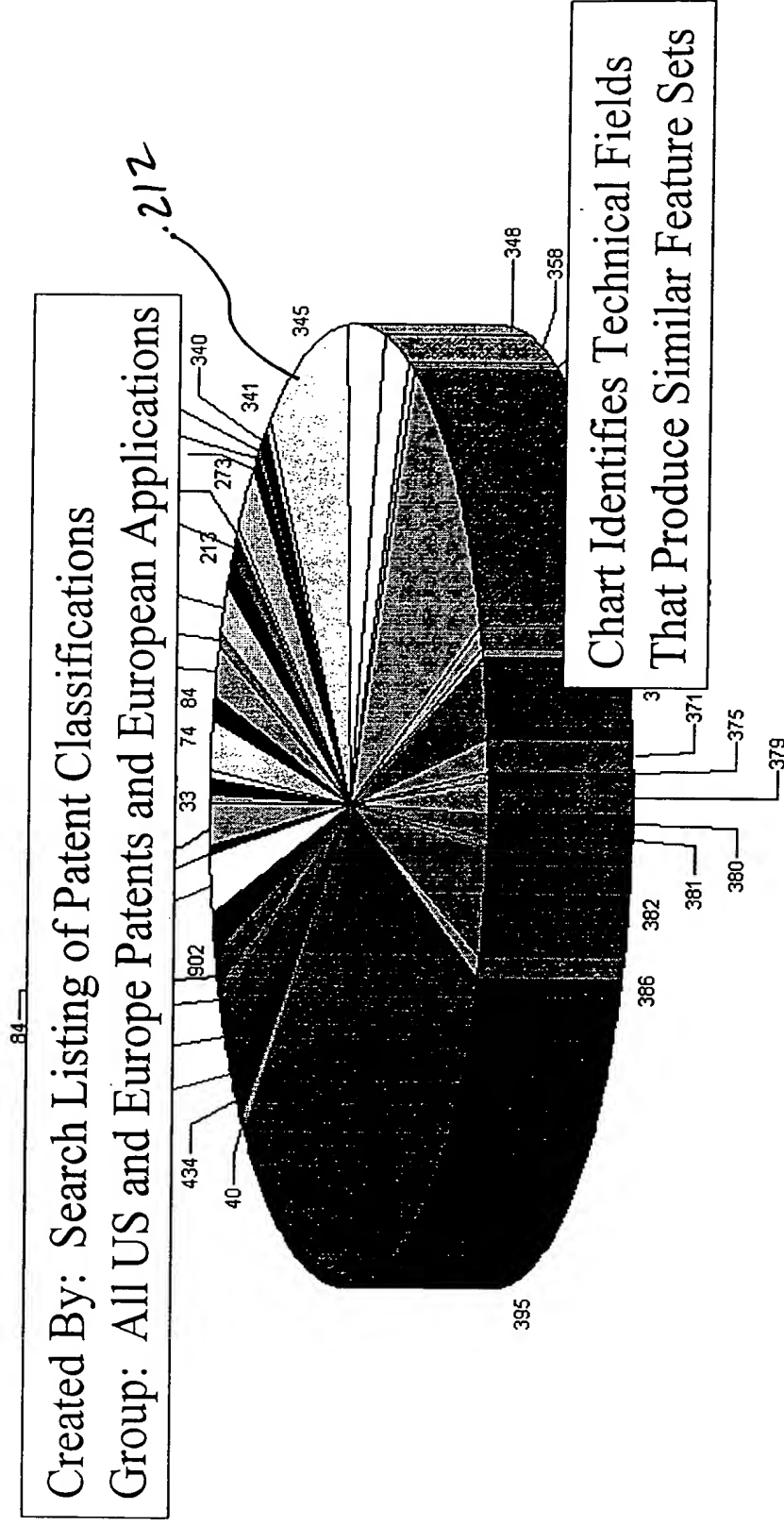


FIG. 21

Tool #13

A Chart of Similar Technologies



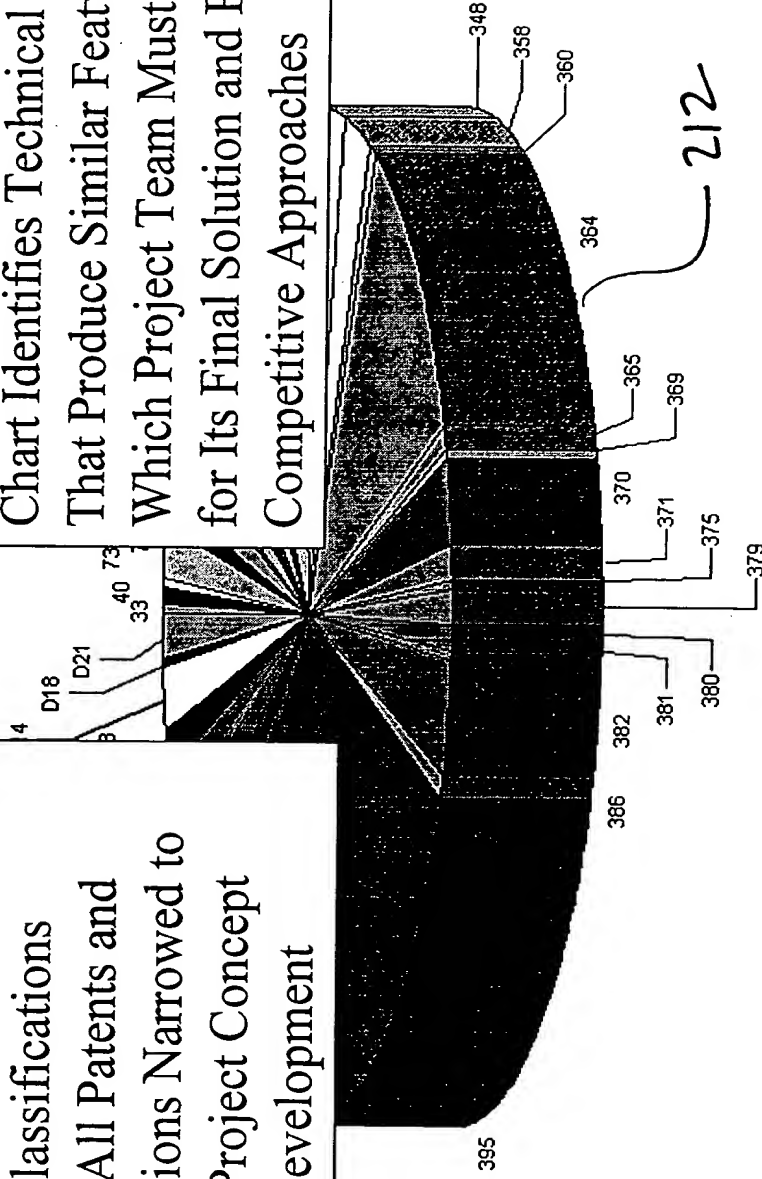
Implication: Project Team Finds What Other Technologies Should Be Considered or Which Might Be Used by Competitors

Tool #35

Map of similar technologies

Created by: A Search listing
Patent Classifications
Group: All Patents and
Applications Narrowed to
Reflect Project Concept
Under Development

Chart Identifies Technical Fields
That Produce Similar Feature Sets
Which Project Team Must Evaluate
for Its Final Solution and Possible
Competitive Approaches



Implication: Project Team Is Aware of the Strengths and Weaknesses
of Their and Possible Competitive Approaches

Tool #14

A Chart of related markets

Created By: a Search
Listing SIC Codes
Group: All US and
Europe Patents and
European Applications

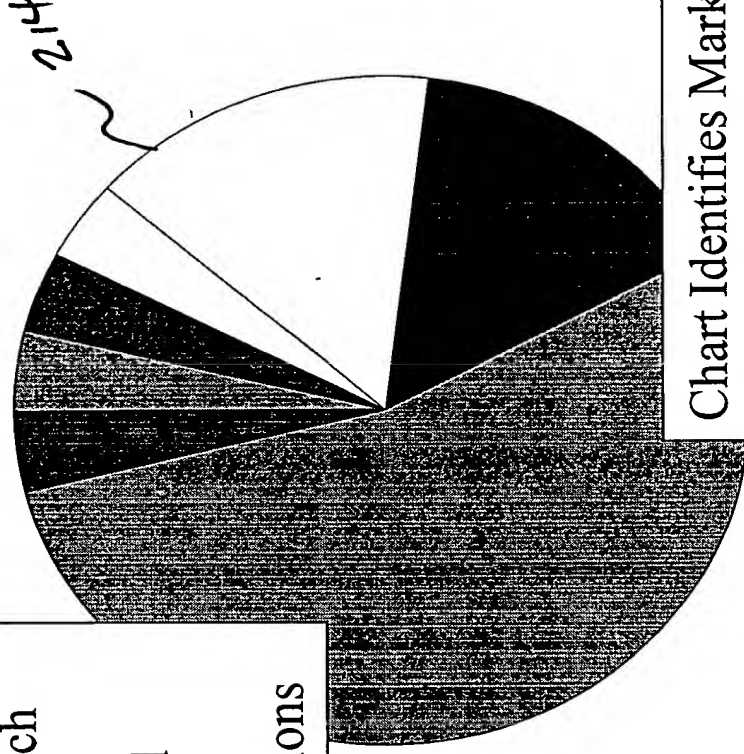


Chart Identifies Market Segments That
Could Possibly Use the Product or Service

Implication: Project Team Finds Other Markets Which Should
Be Assessed by Team Members

2700

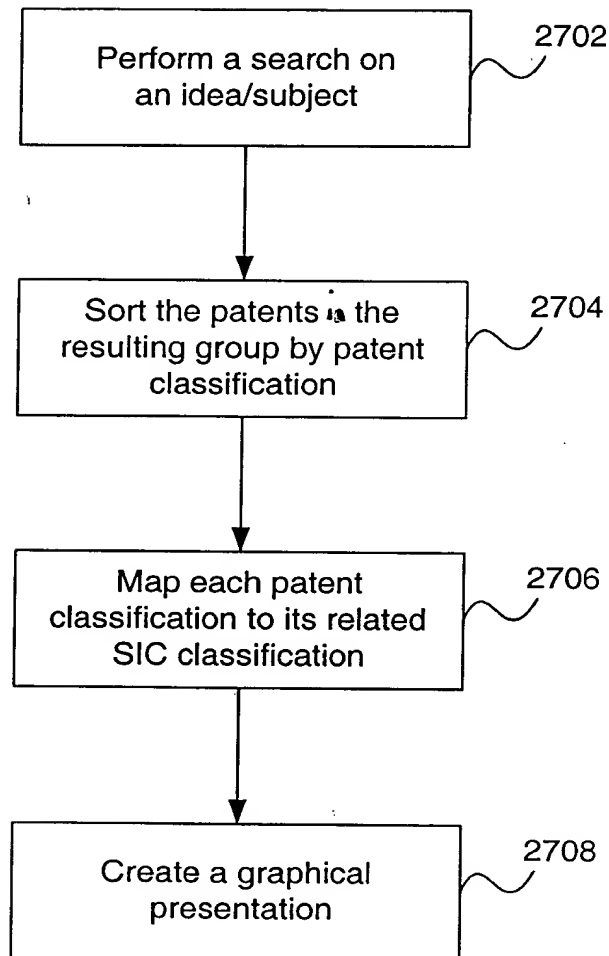


FIG. 27

Tool #25

A Chart of Related Markets

214

Created By: A Search
Listing SIC Codes
Group: All US and
European Patents and
European Applications

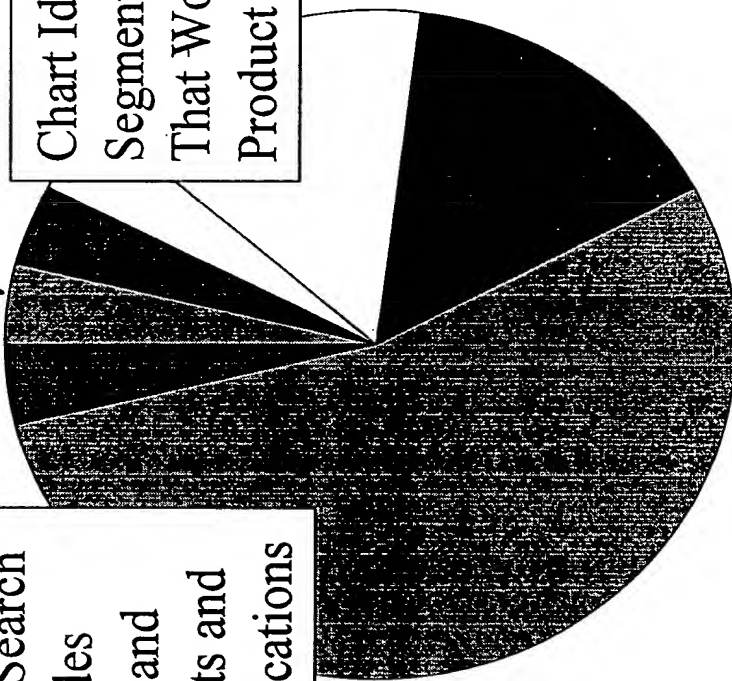
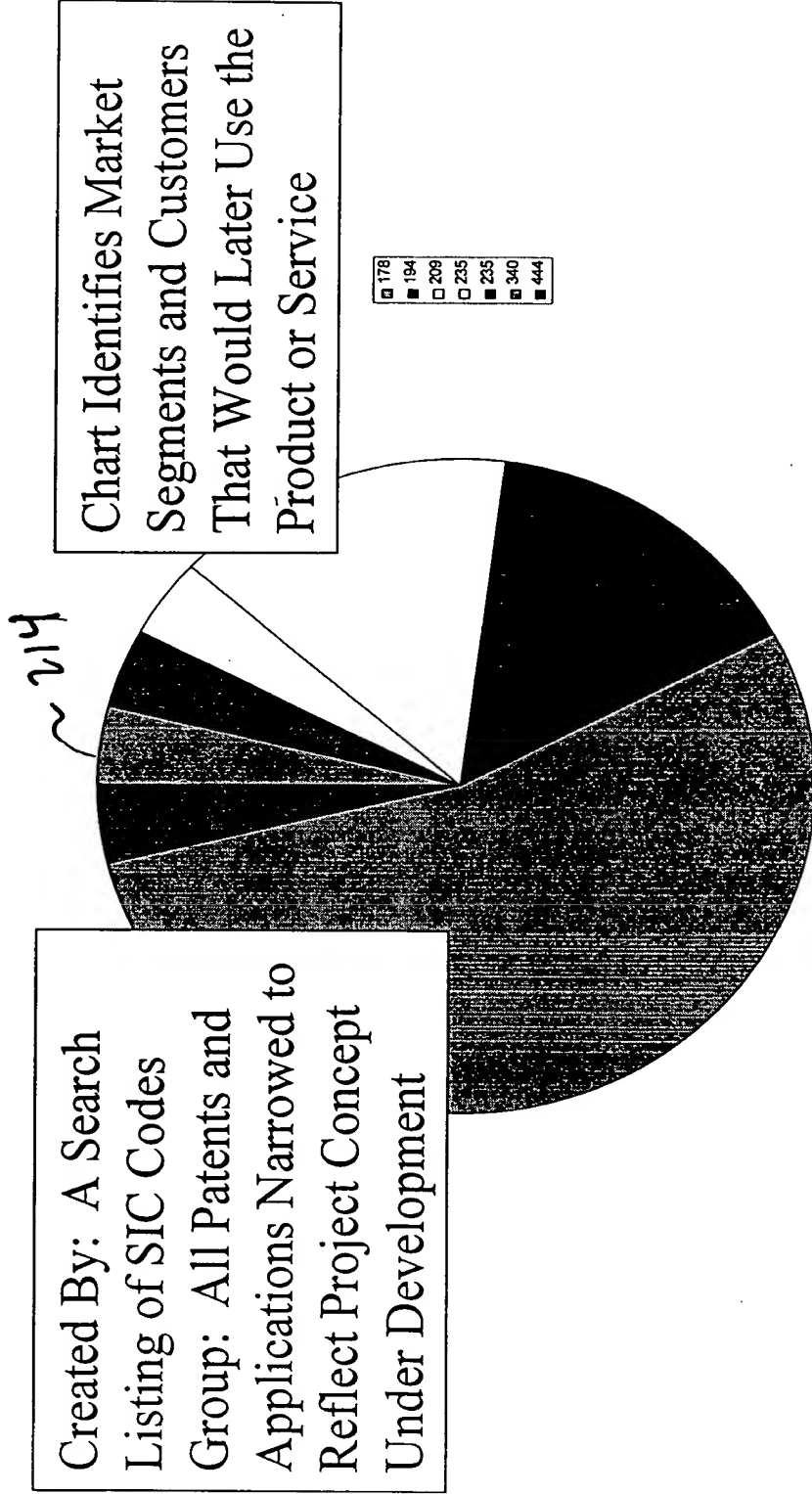


Chart Identifies Market
Segments and Lead Customers
That Would First Use the
Product or Service

Implication: Project Team Finds What Markets In Which
To Check for Lead Customers To Use Product or Service

Tool #36

A Chart of related markets



Implication: Project Team Knows What Markets Are Targets for Sales Growth After Commercialization of Initial Product

002040" 15551555

Tool #5

Patent Activity Chart

2/6

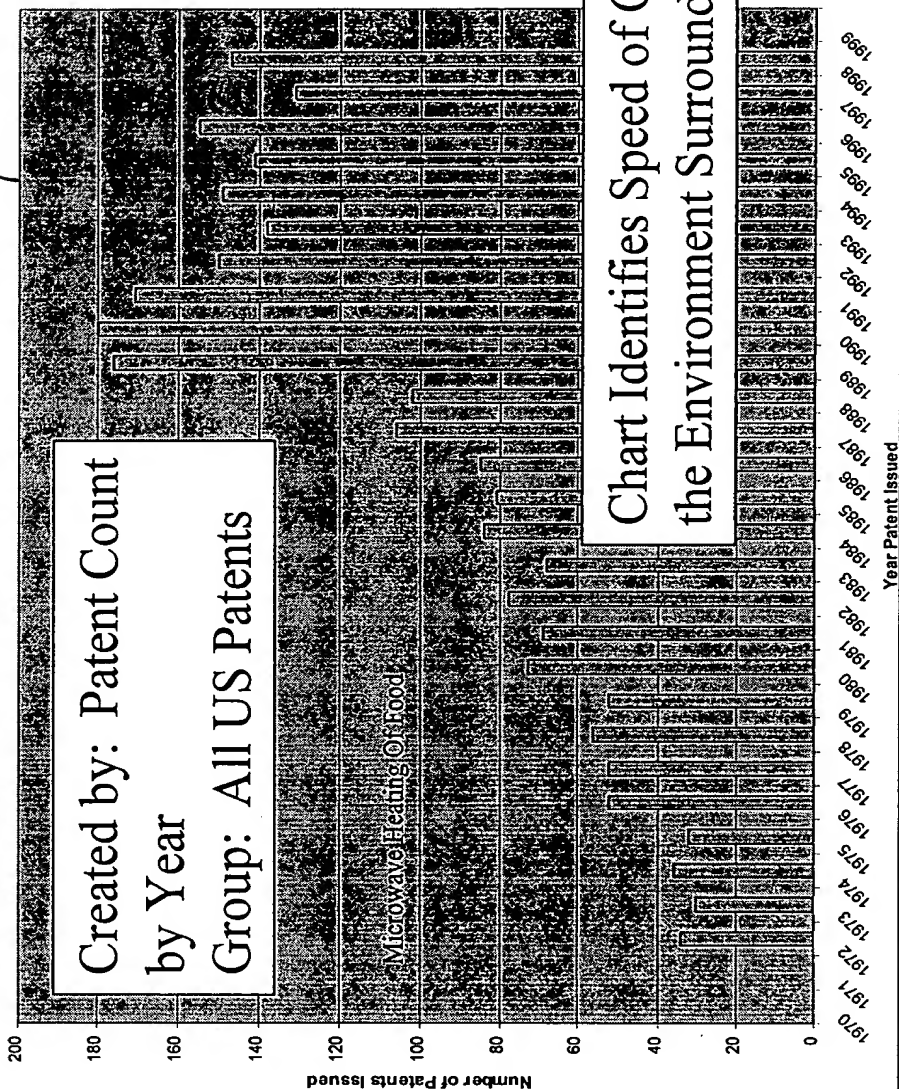


Chart Identifies Speed of Change in the Environment Surrounding the Idea

Implication: Inventor Should Time His/her Efforts To Match the General Activity in the Area of the Idea

FIG. 30

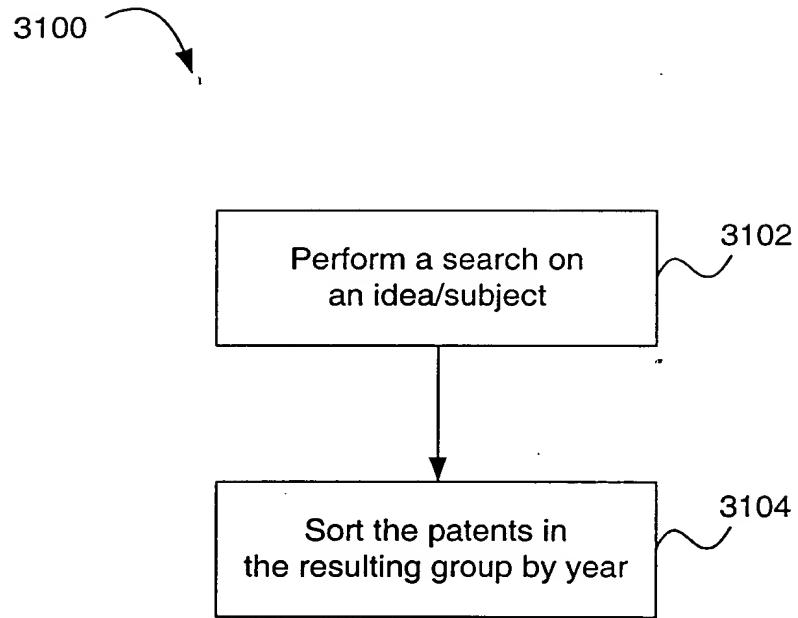
[illegible]

FIG. 31

Tool #15

Recent Patent Activity Chart

Assignee - Patent Count by Year Graph for Microwave Heating of Food After 1992

Created by: Patent Count
by Assignee by Year
Group: All Patents

218

Document Count

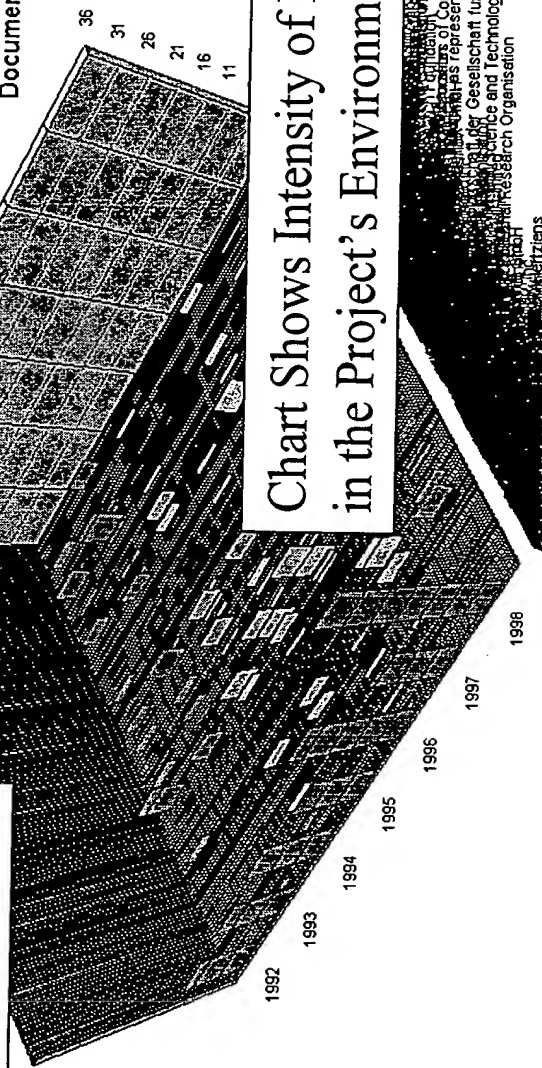


Chart Shows Intensity of Recent Effort
in the Project's Environment

Ministerium für Wissenschaft und Technologie
Gesellschaft für praktische Energiekunde
Minister of Science and Technology
Minister of Energy

Implication: If Heavy Activity, the Project Team Should Consider If
New Product Is Distinctive Enough to Ensure Commercial Success

0001-73.vsd/9

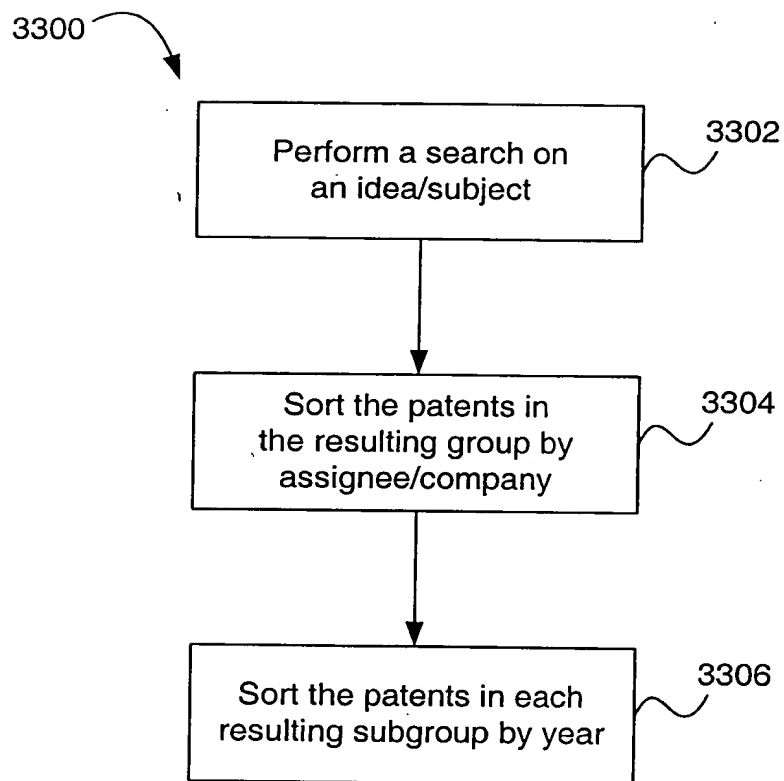
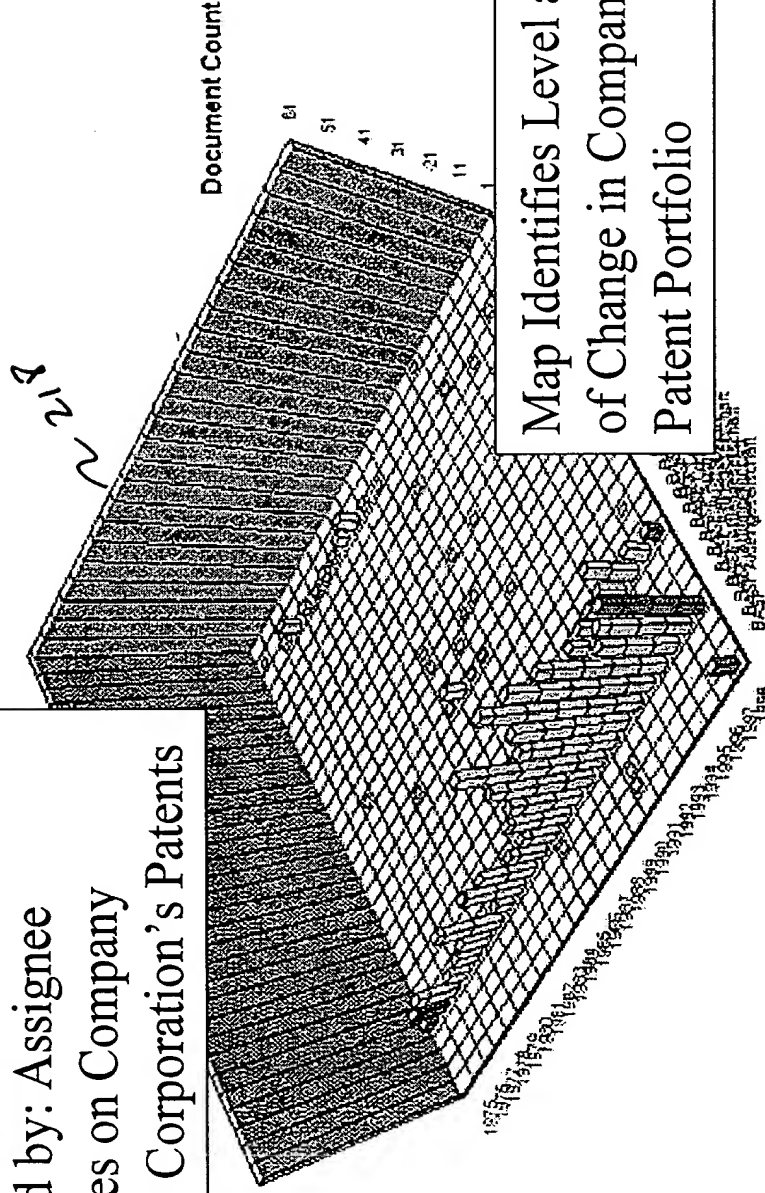


FIG. 33.

Tool #53 Map of Company Patent Activity

Created by: Assignee
Searches on Company
Group: Corporation's Patents



Recent Patent Application Chart

Assignee - Patent Application Count by Year Graph for Microwave Heating of Food Applications after 1995

Created by: Application Count
by Assignee For Last Four Years
Group: All European Applications

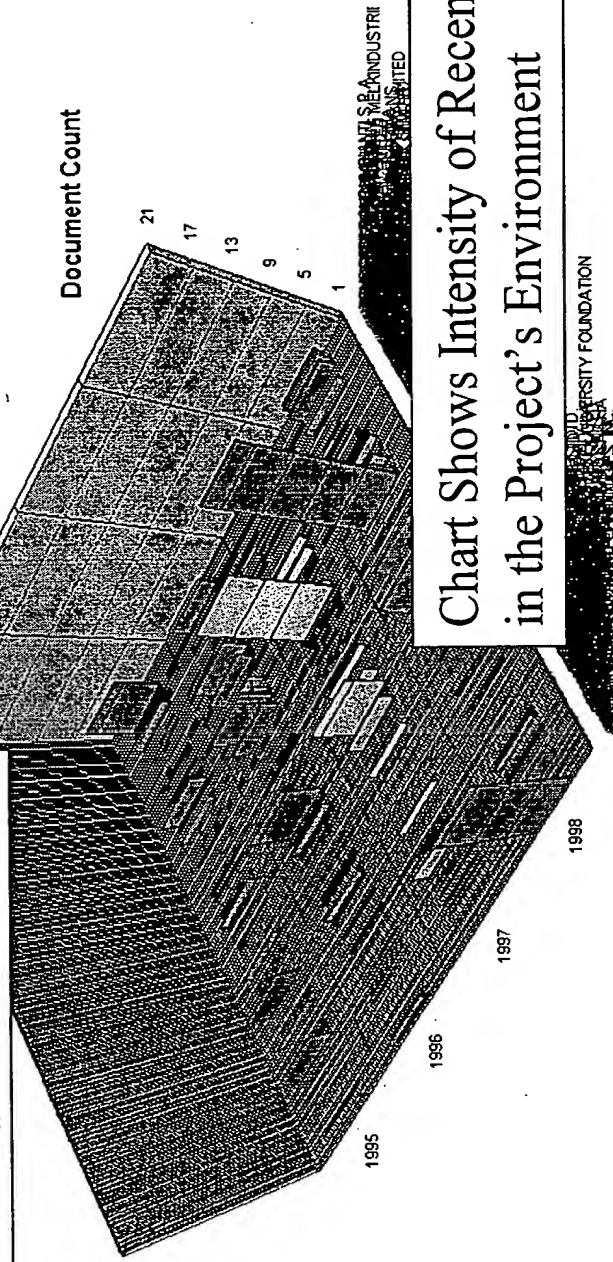


Chart Shows Intensity of Recent Effort
in the Project's Environment

Implication: Project Team Knows Potential Partners and
Competitors to Preliminarily Assess

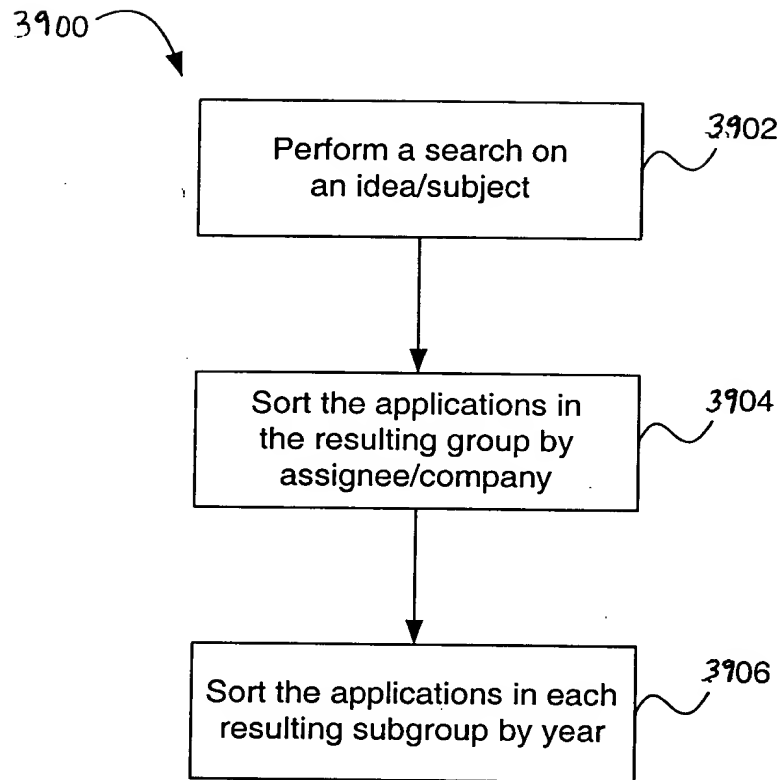
[illegible]

FIG. 39

Recent Patent Application Chart

Assignee - Patent Application Count by Year Graph for 1997

Created by: Application Count
by Assignee For Last Two Years
Group: All European Applications

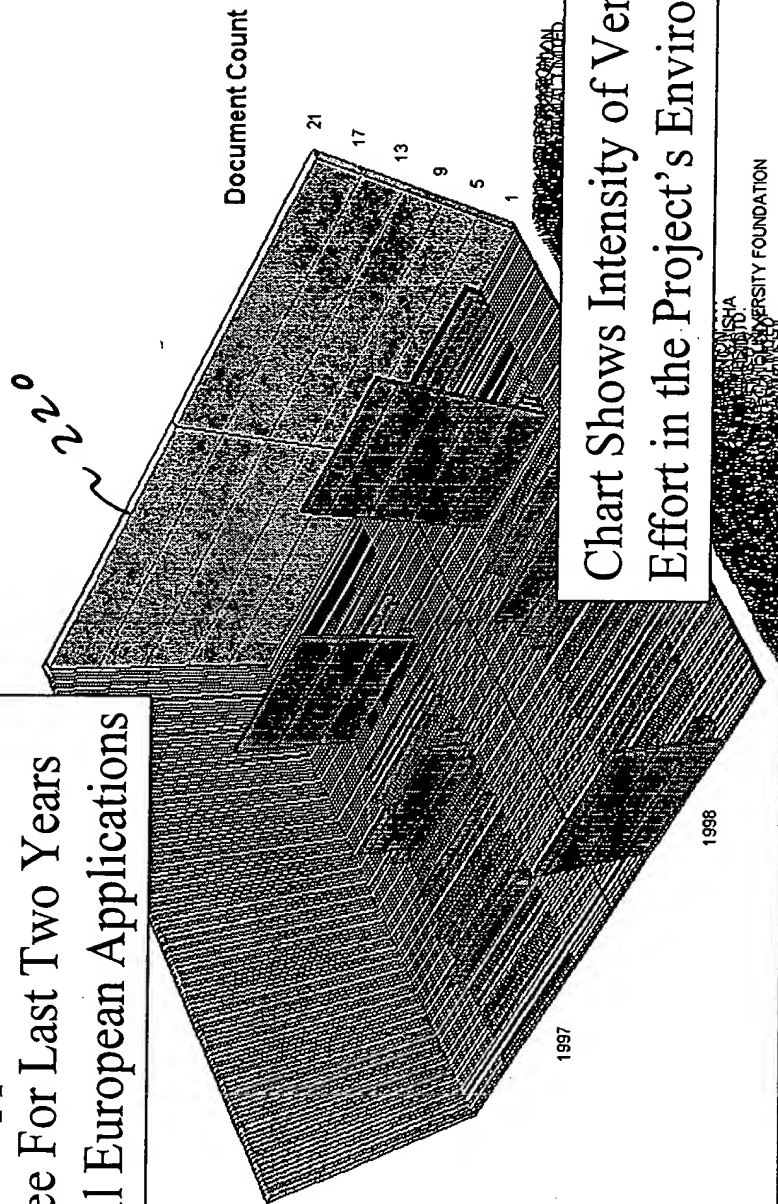


Chart Shows Intensity of Very Recent
Effort in the Project's Environment

Implication: Project Team Knows Potential Partners To
Approach and Competitors to Watch

Recent Patent Application Chart

Assignee - Patent Application Count by Year Graph for 1998

Created by: Application Count
by Assignee For Last Year
Group: All European Applications

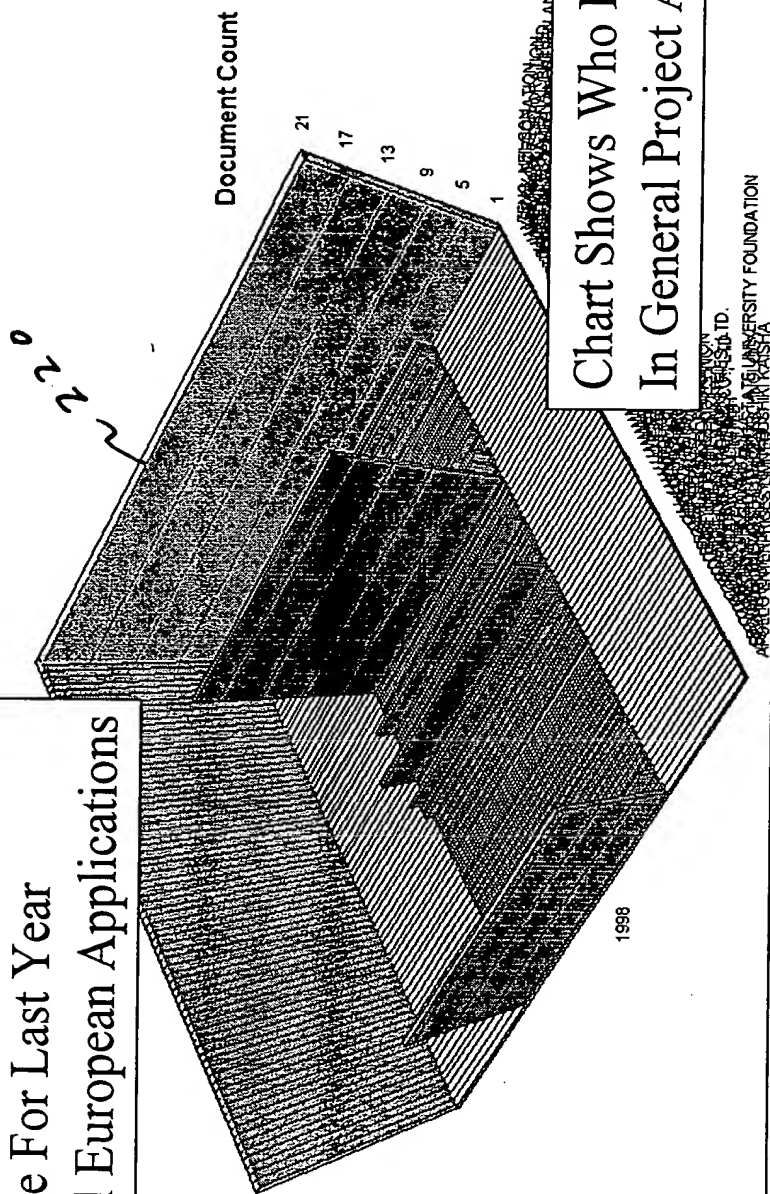


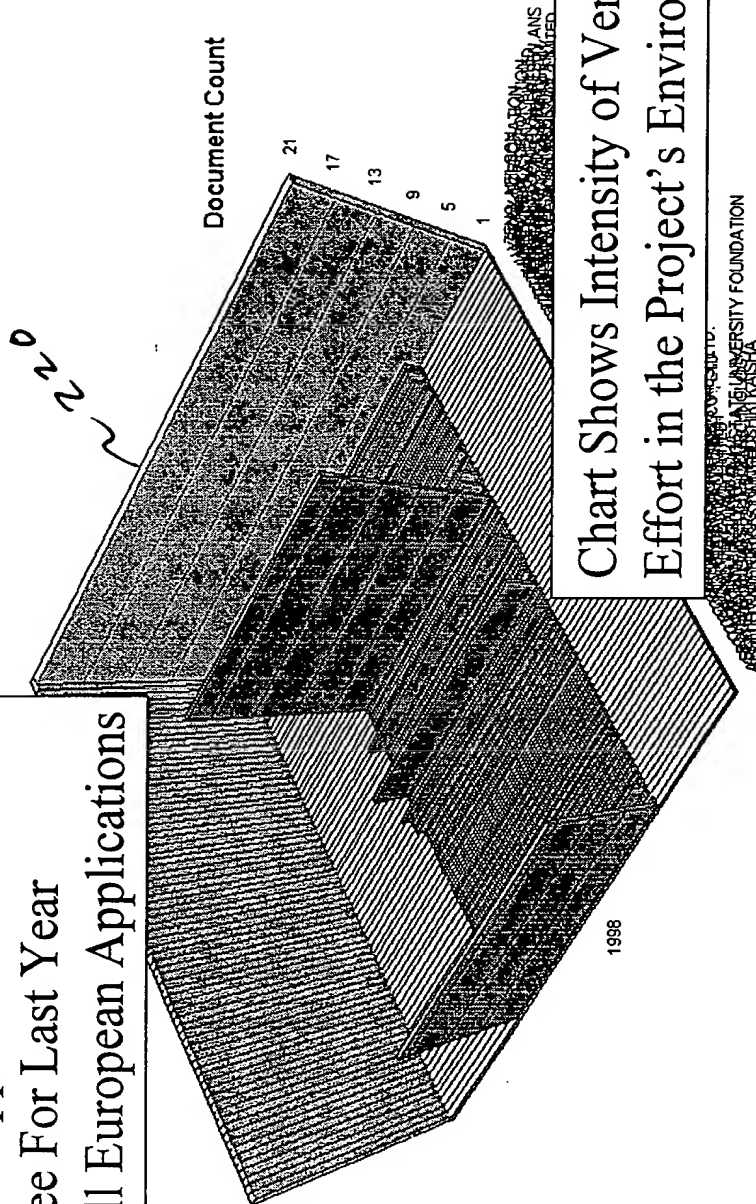
Chart Shows Who Is Active
In General Project Area

Implication: Project Team and Competitive Intelligence
Knows Which Competitors to Watch

Recent Patent Application Chart

Assignee - Patent Application Count by Year Graph for 1998

Created by: Application Count
by Assignee For Last Year
Group: All European Applications



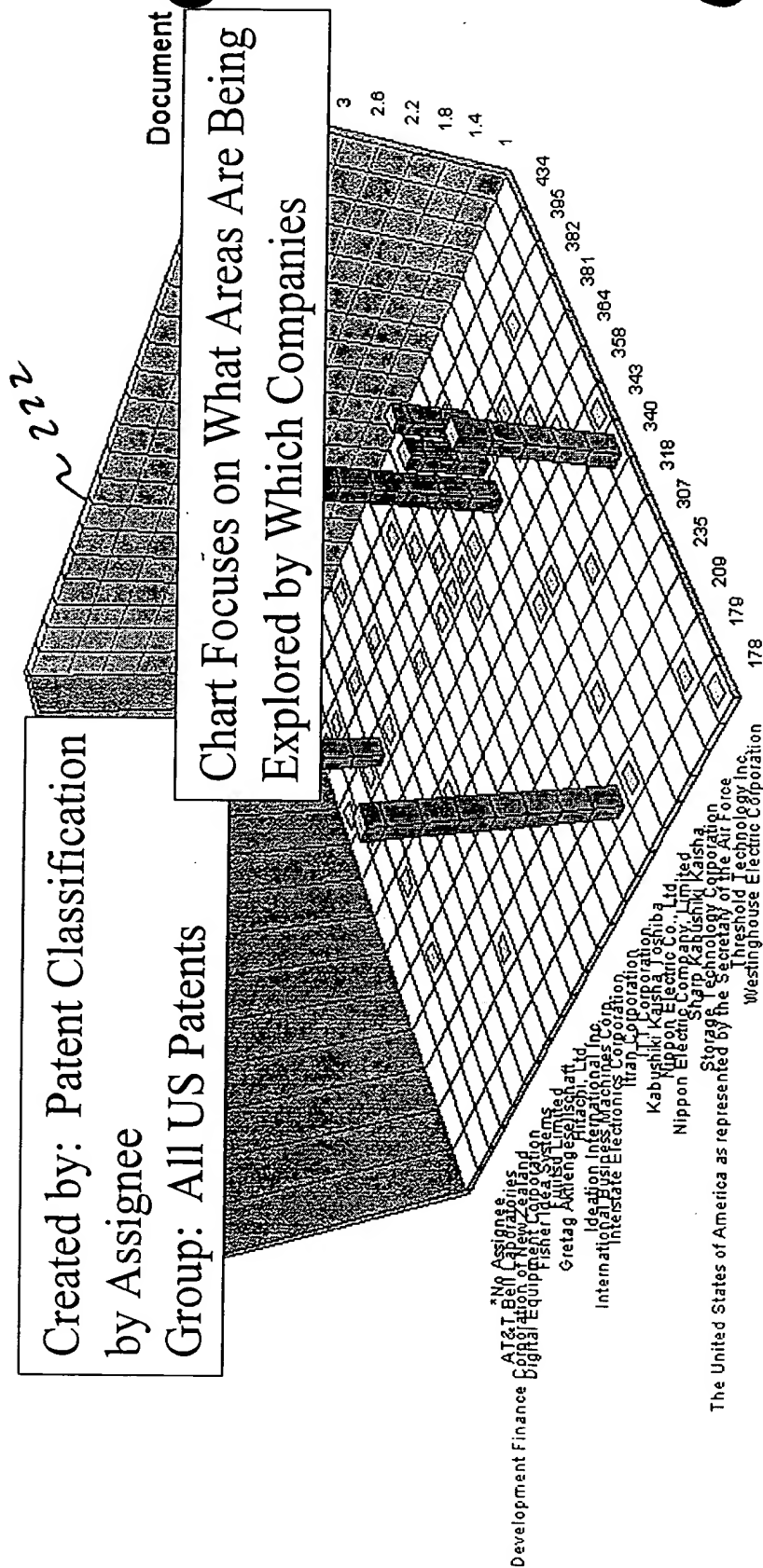
Implication: Project Team Knows Potential Partners and Competitors to Watch

FIG. 42

[illegible]

Tool #6

Chart Narrowing Areas to Explore



Implication: Inventor Knows in Which Competitors Major Efforts Exist. Possible Partners Are Likewise Identified

EH 6.43

0001-73.vsd/11

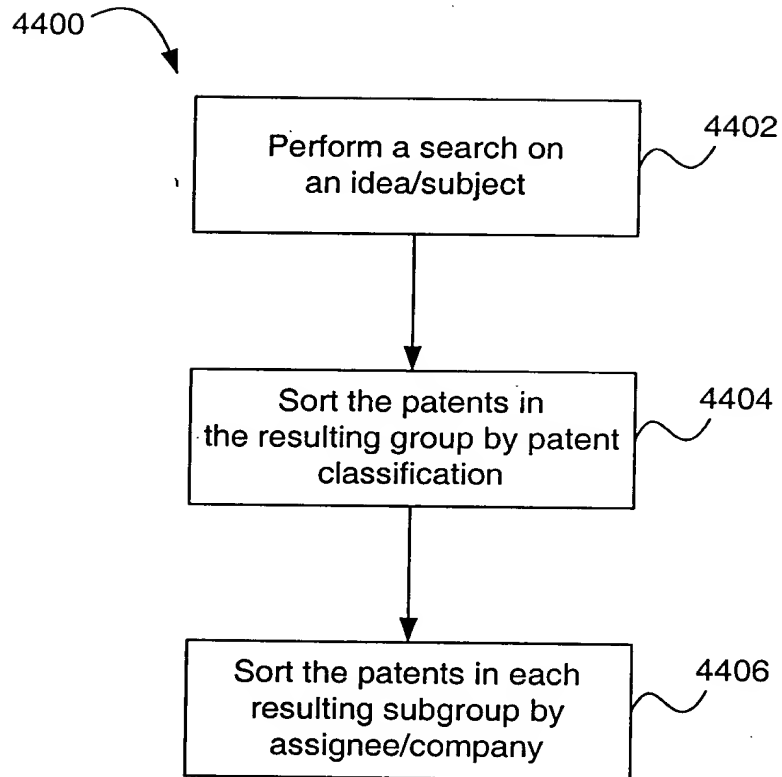


FIG. 44

Tool #17

A Chart of Other Company's Work Related to the Project Goal

Created by: Patent

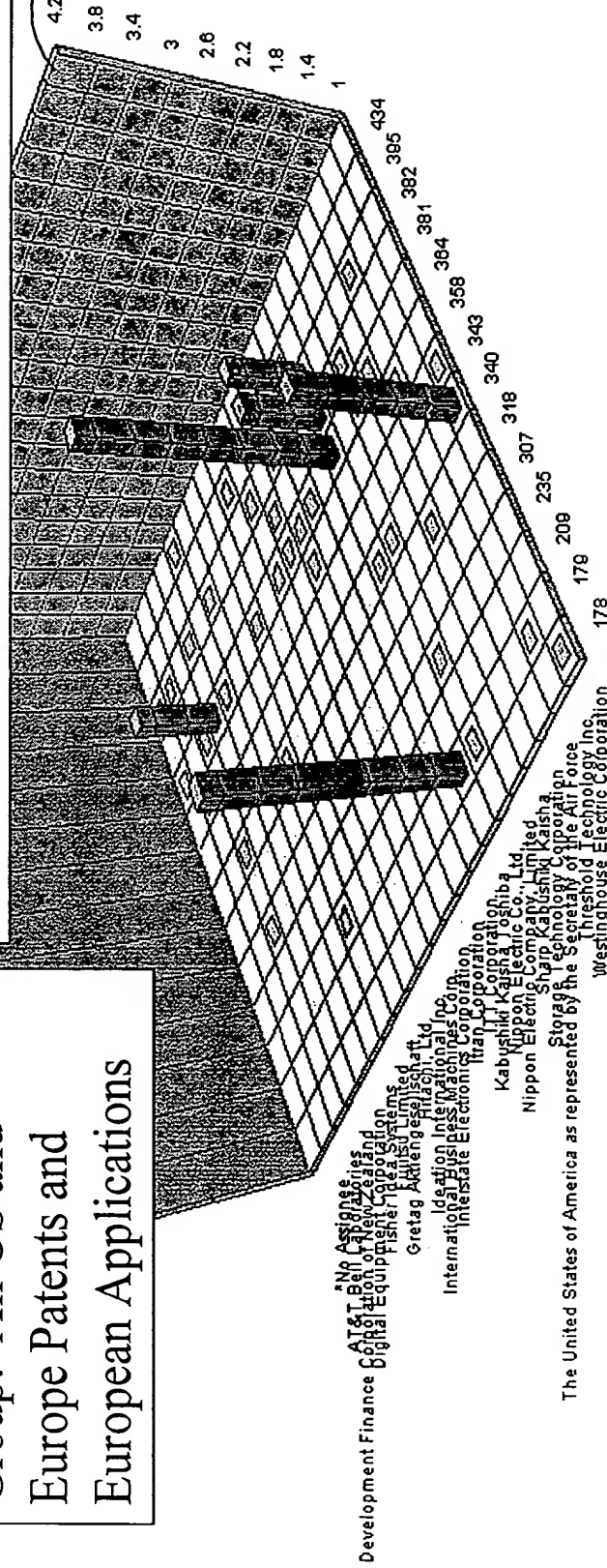
Classification by Assignee

Group: All US and

Europe Patents and

European Applications

Chart Assesses Serious Competitors and Possible Partners in a New Technology or Market



Implication: Which Areas and What Companies to Track During Project

002040" +999h560

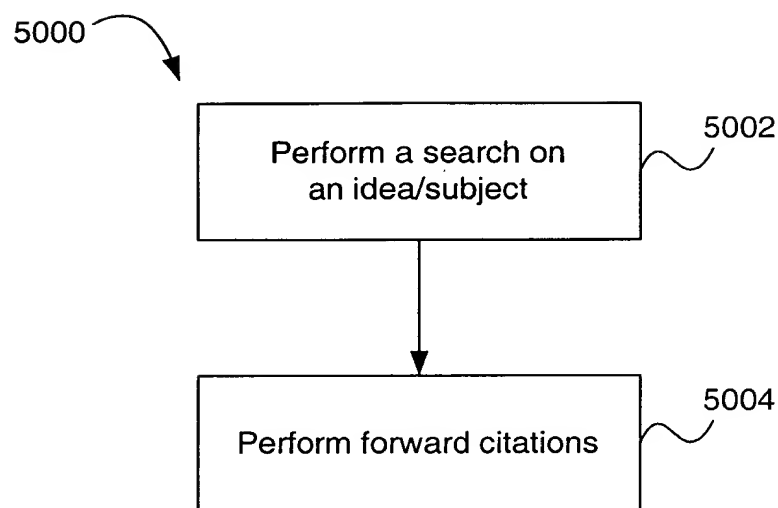
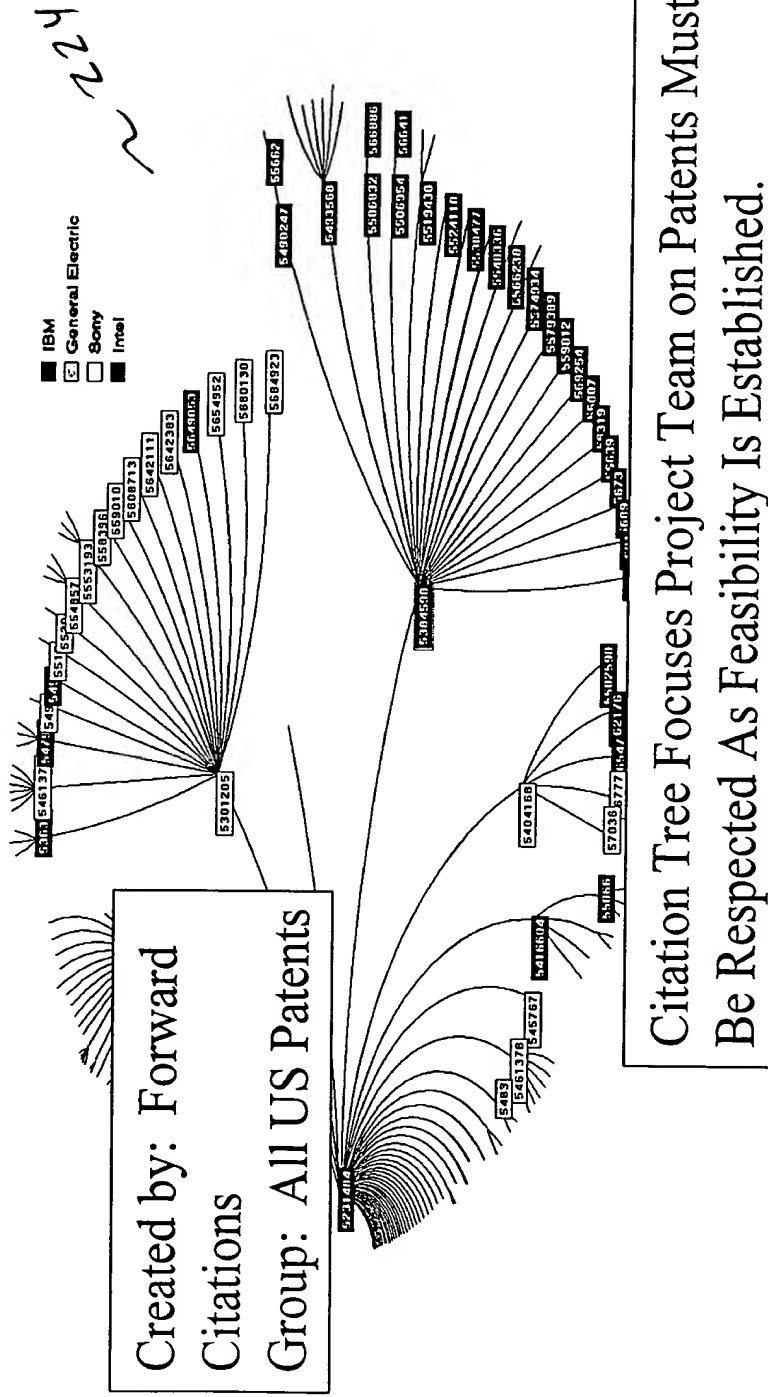


FIG. 50

[illegible]

Tool #29

A Citation Tree Showing Project's Prior Art

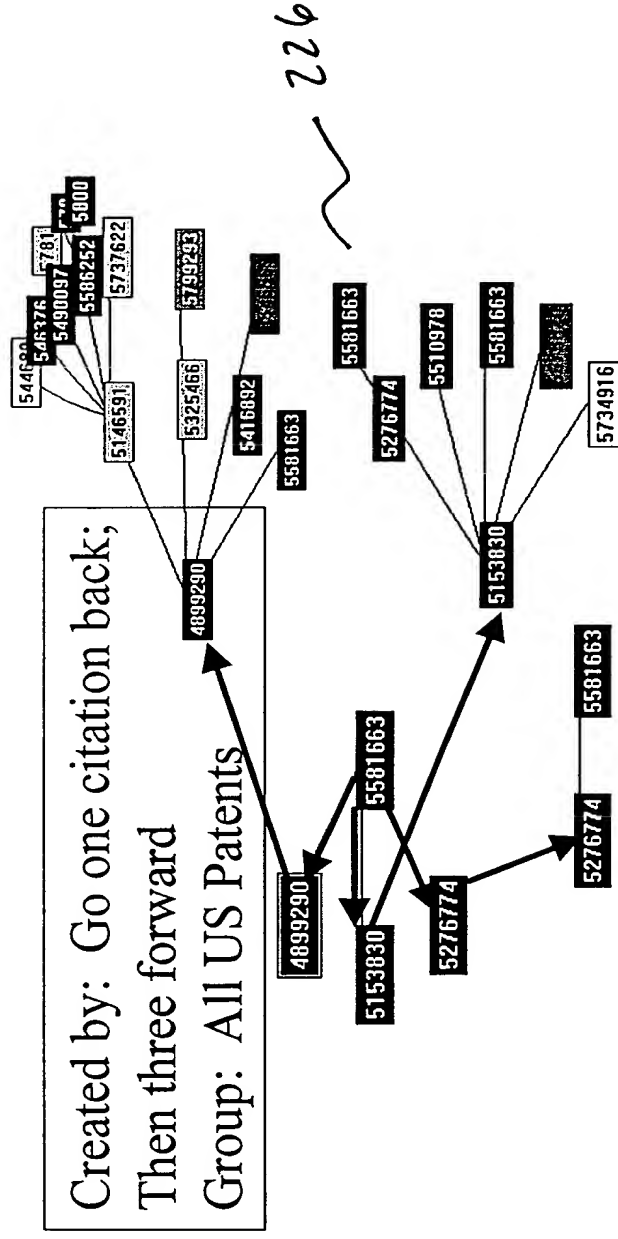


Implication: The Project Team Works Around Prior Art Problems Early In The Development Process.

FI 6.52

Tool #8

A Citation Root-tree Showing Idea's Environment



The Citation Root-tree Predicts Related Areas That Are Possibly Under Exploration by Other Companies

Implication: The Inventor Can Promote His Idea As Distinct From Other On-going Work

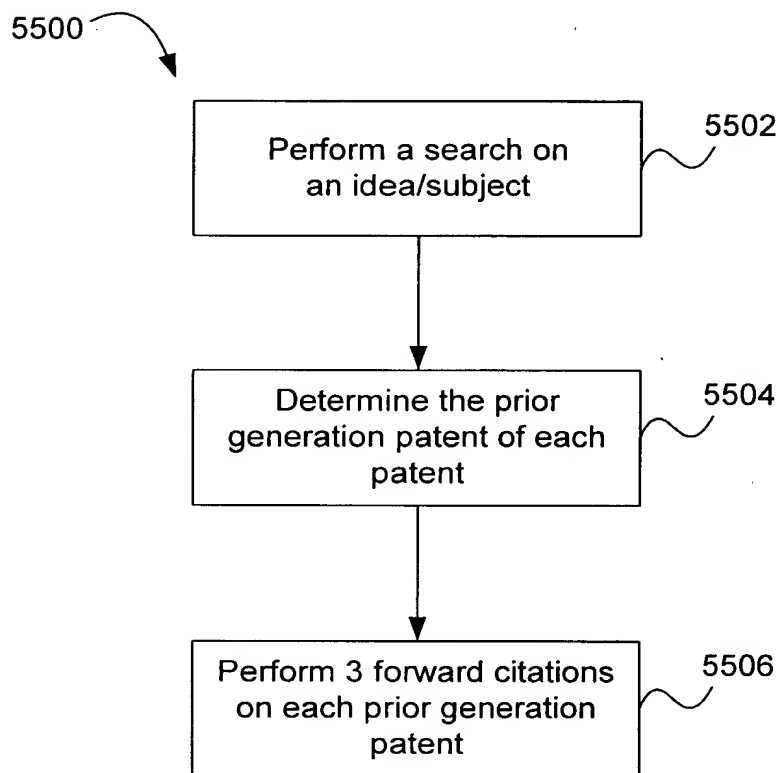
[illegible]

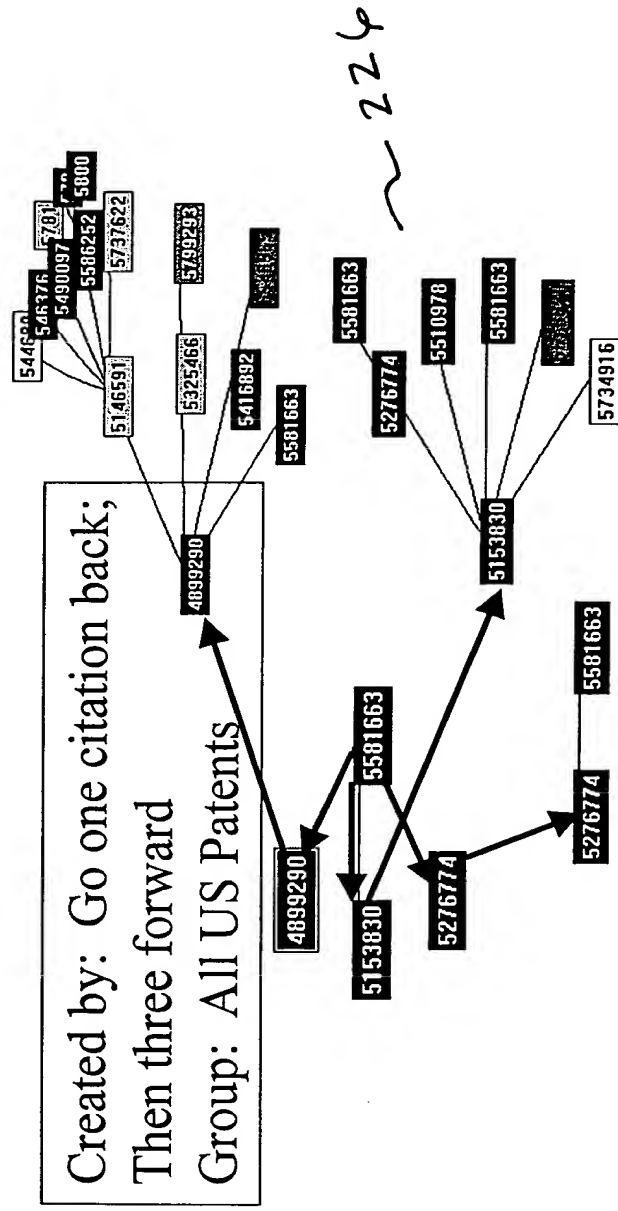
FIG. 55

A Citation Root-tree Showing Concept's Environment



Implication: The Project Team Can Predict If There Are Possibly Other Competing Technology and Markets Under Development.

A Citation Root-tree Showing Competitive Environment

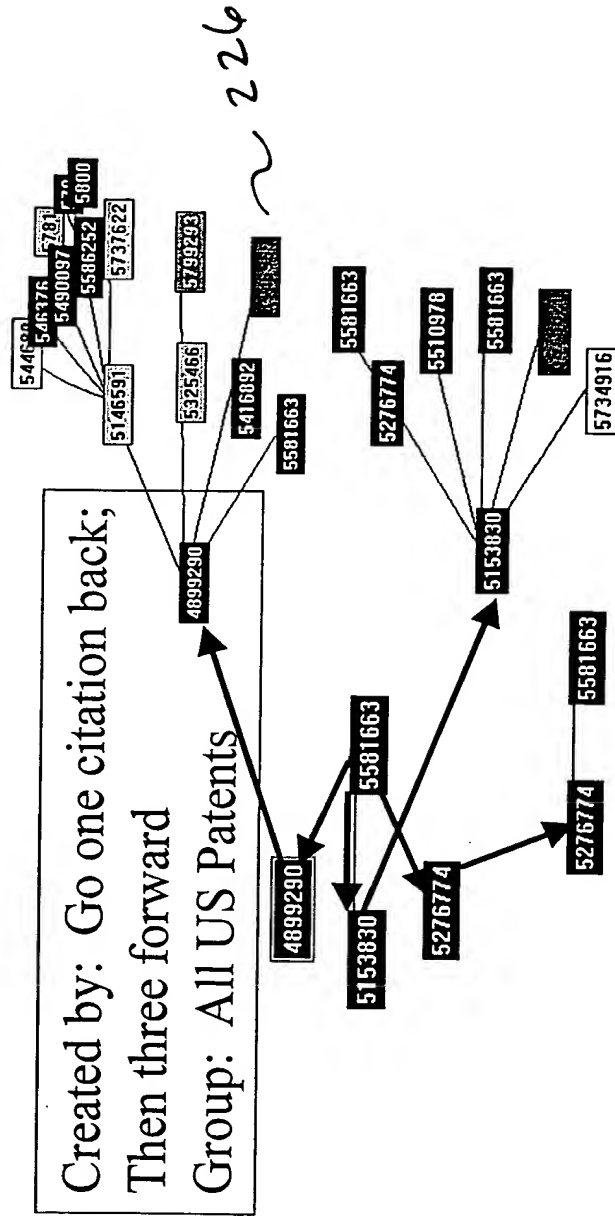


The Citation Root-tree Shows on Which Companies Competitive Intelligence Should Do a Preliminary Investigation

Implication: The Project Team Knows Early On Possible Competitive Activities That It Must Address In Its Project Plan

Tool #41

A Citation Root-tree Showing Project's IP Position

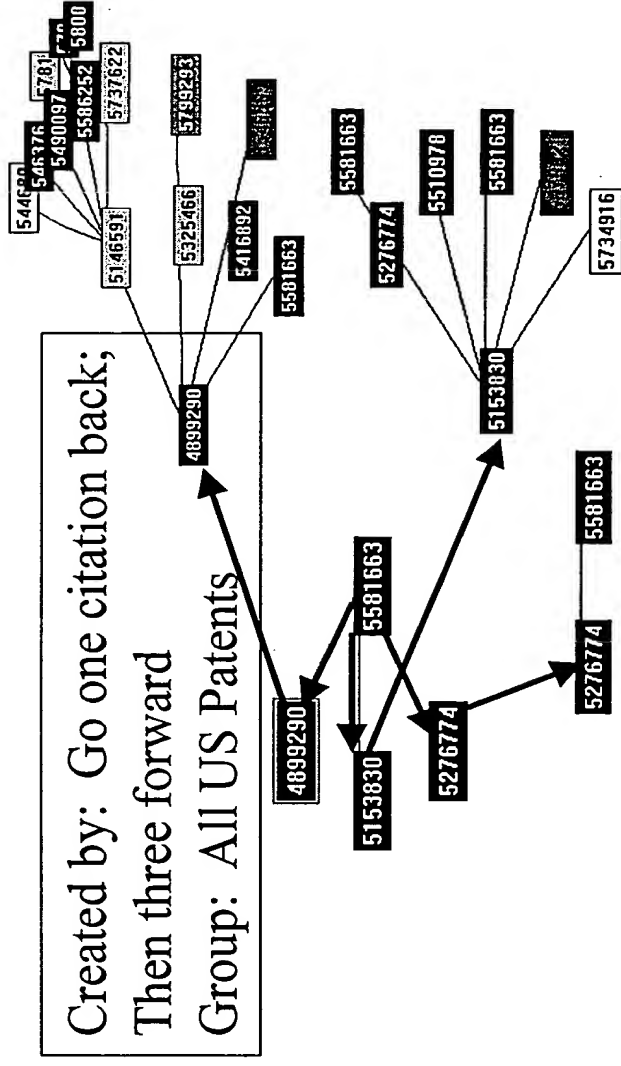


Continuous Updating of The Citation Root-tree Shows Which Companies Competitive Intelligence Must Follow in Detail

Implication: The Project Team Knows If Its Development Activities and Project Timing Are Likely to Yield a Commercial Competitive Success

Tool #48

A Citation Root-tree To Time Project's IP Filings

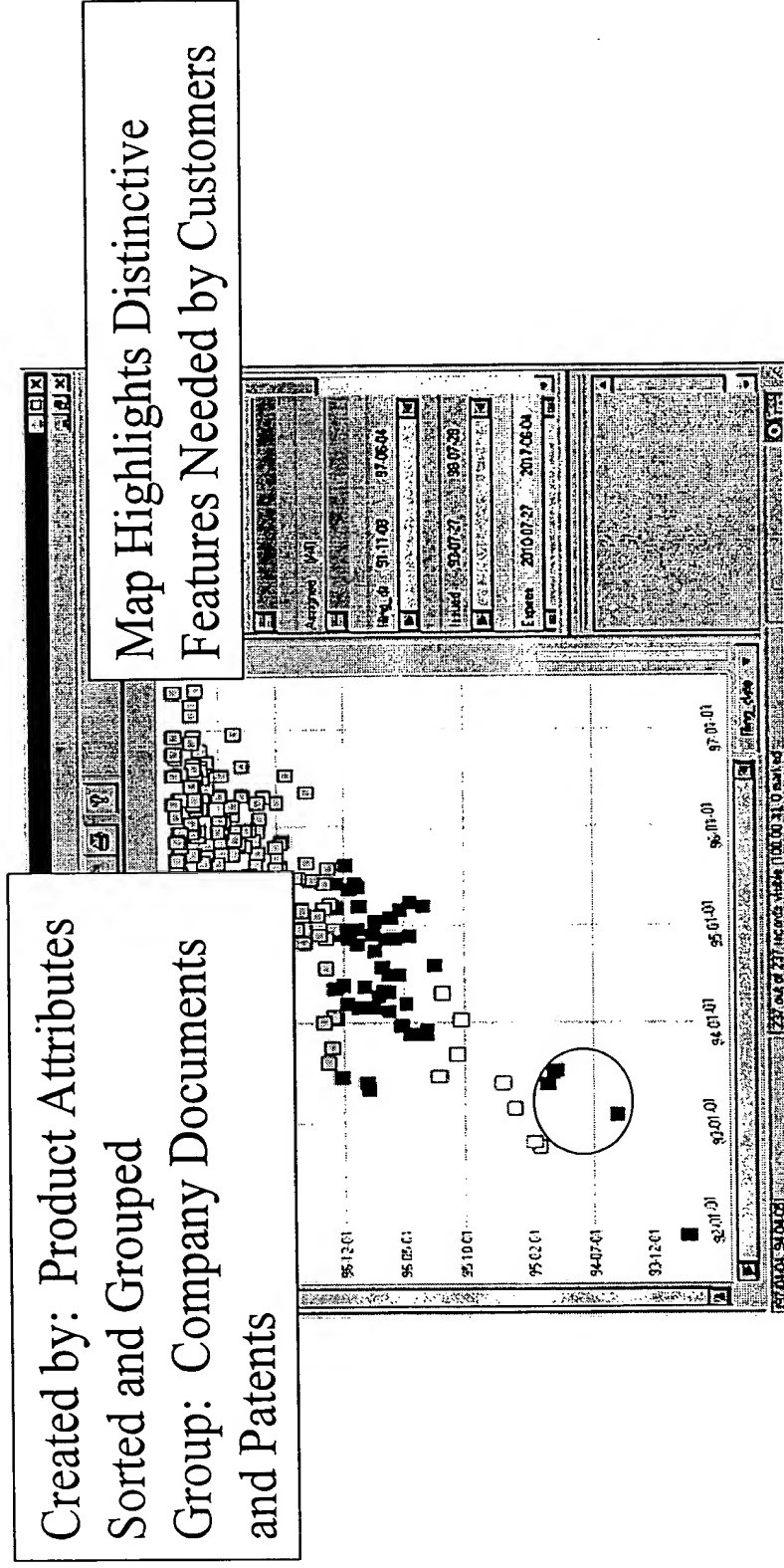


Continuous Updating The Citation Root-tree Shows New Work Competitive Intelligence Must Immediately Check Out to Protect Scale-up Activities

Implication: The Project Team Can Time Scale-up Activities and Filing of Patents to Ward Off Competition

Tool #52

Proposed Features Map In The Context of All Possibilities



Implication: Proposed Projects' New Features Stand Out From What Exists Today

FIG. 60

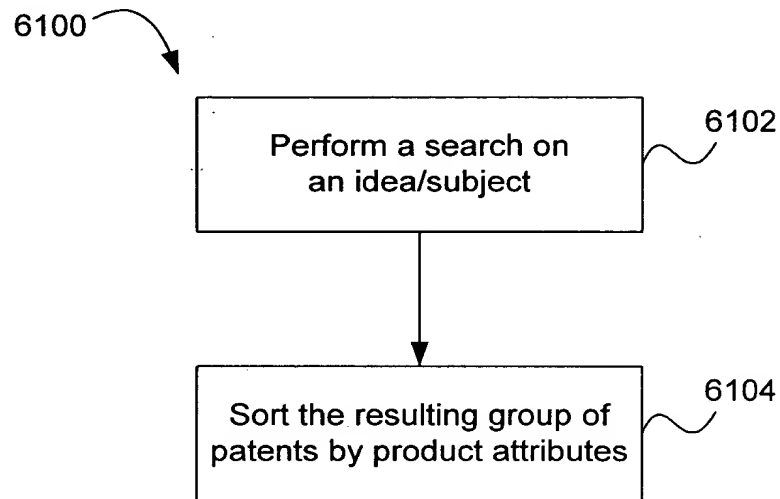


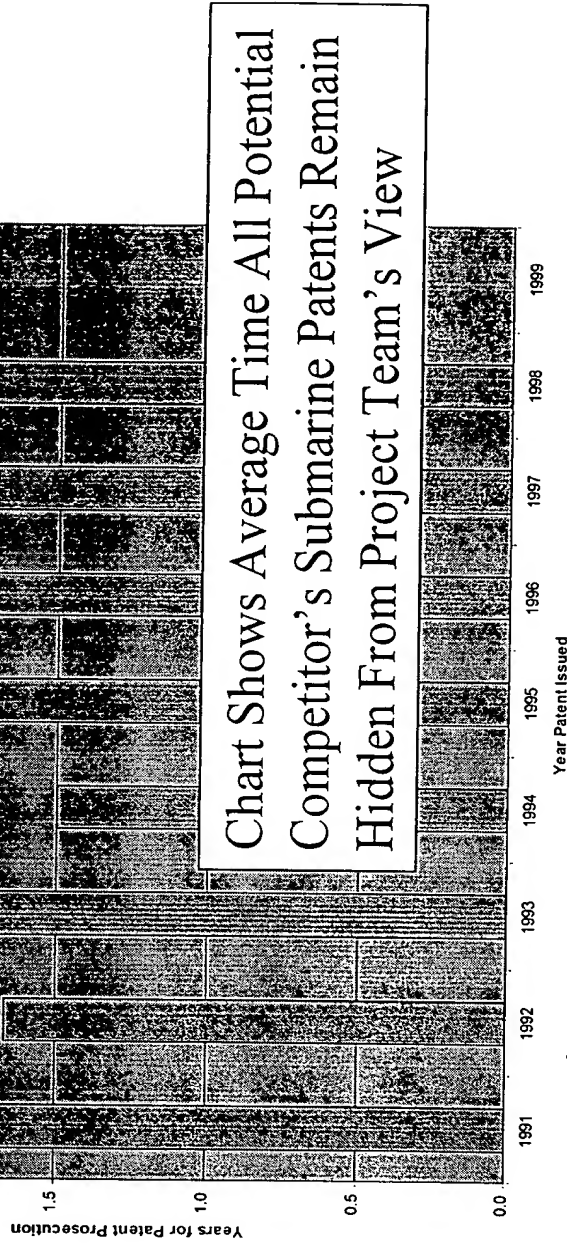
FIG. 61

Tool #31

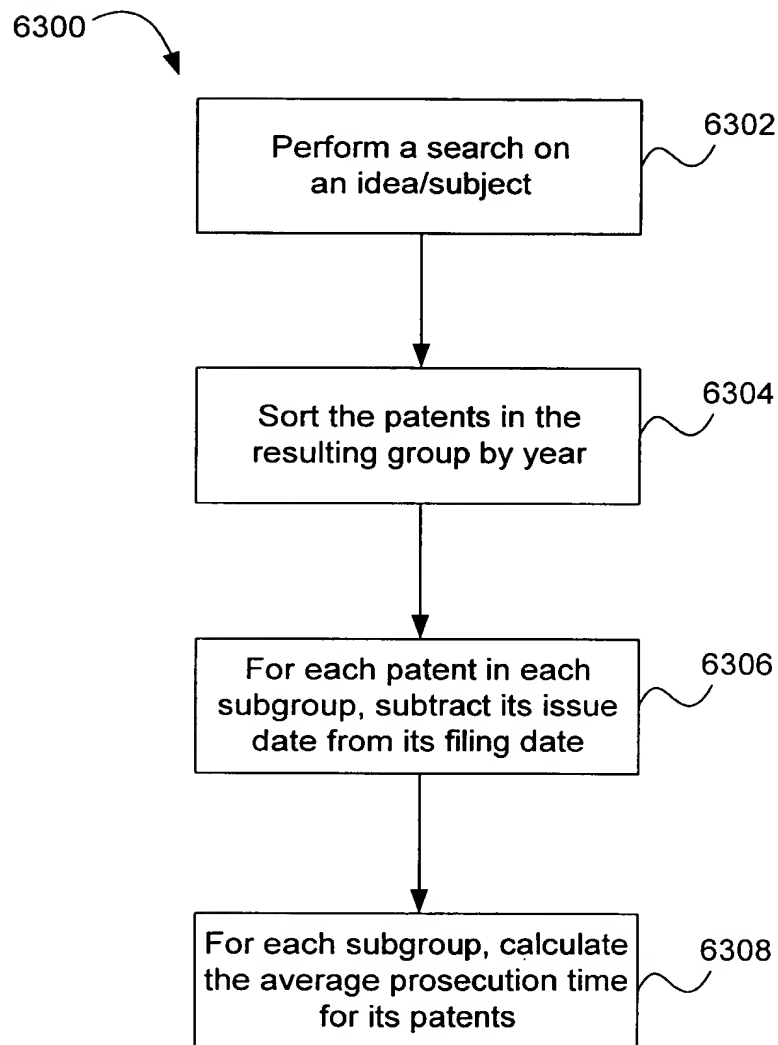
Cycle Time for Patent Prosecution

130

Created by: ²⁵Searching US
Patents Related to Project
Group: All US Patents

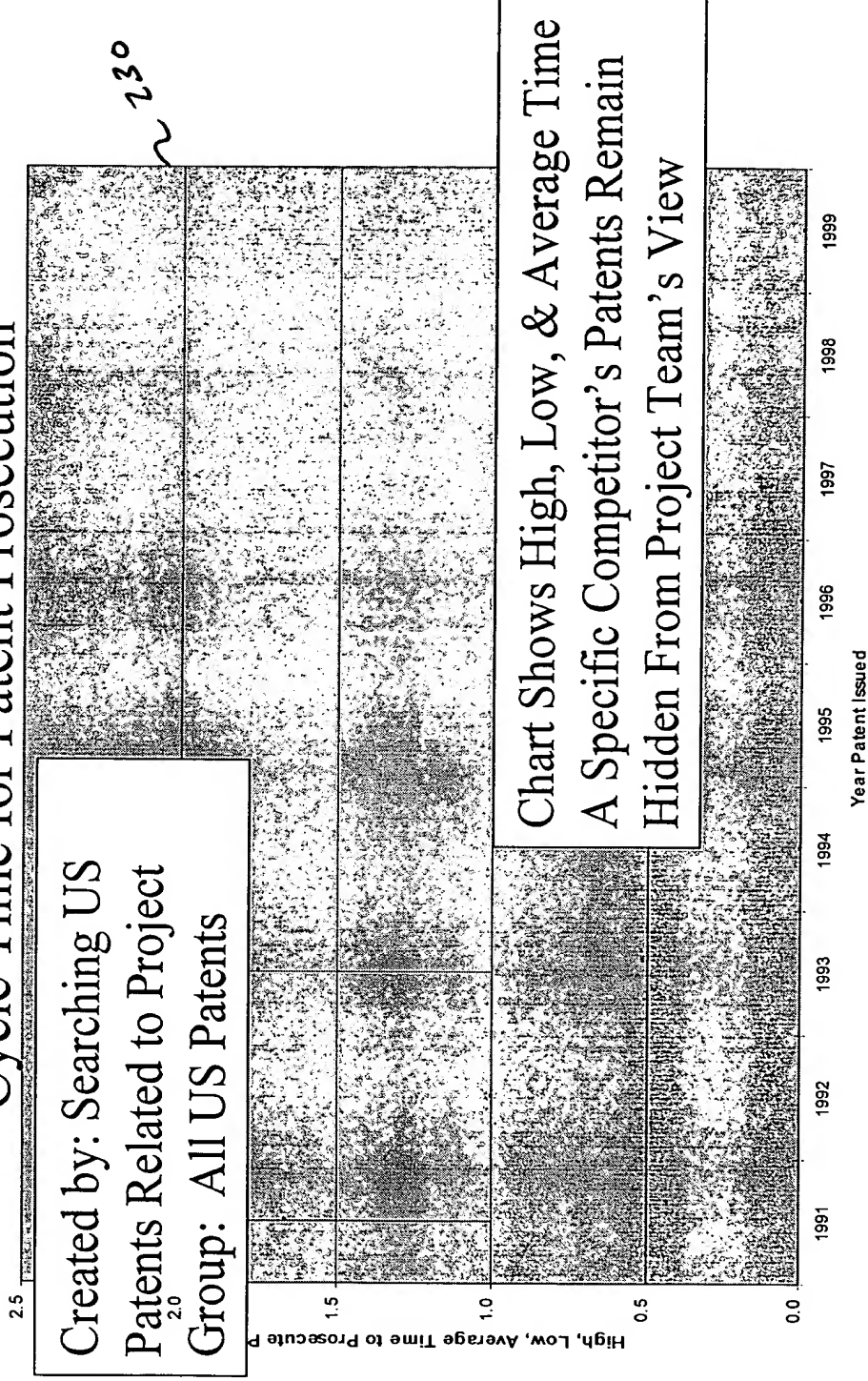


Implication: Project Team Knows Timing Risk From US Patent Databases

**FIG. 63**

Tool #42

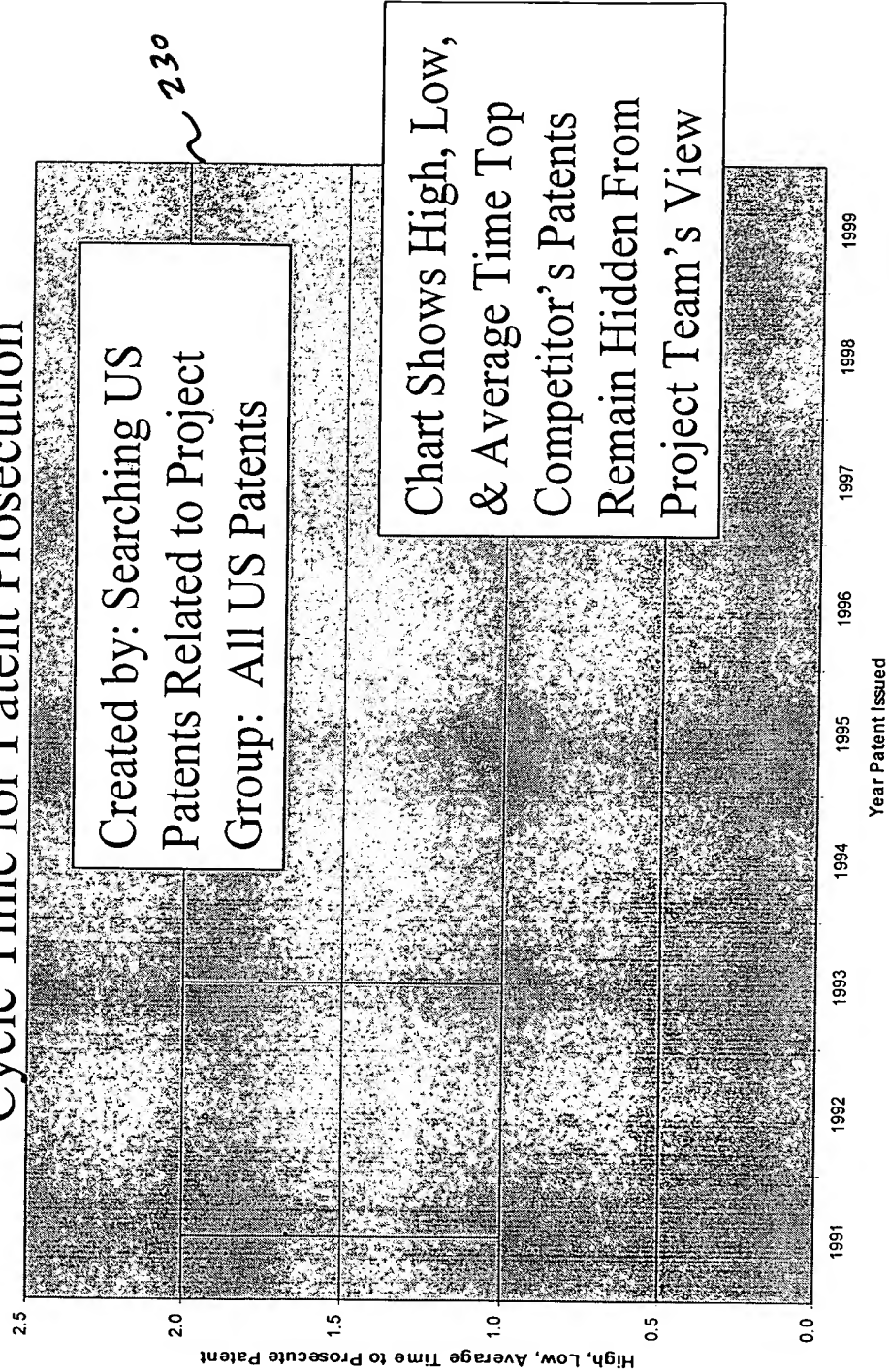
Cycle Time for Patent Prosecution



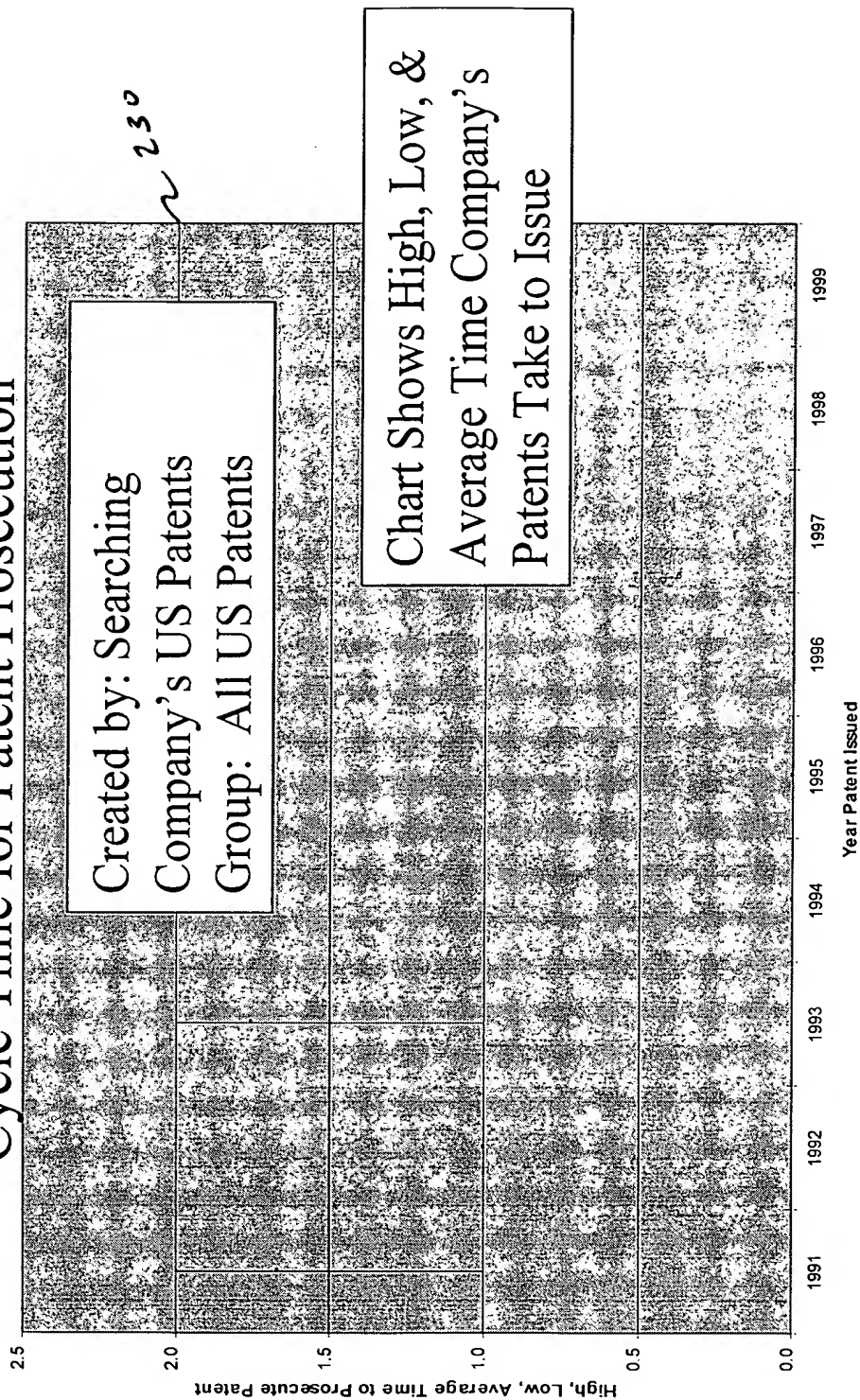
Implication: Project Team Knows Timing Risk From Specific Competitor's Upcoming Patents

Tool #49

Cycle Time for Patent Prosecution



Tool #54 Cycle Time for Patent Prosecution



Implication: R&D Management Can Take Steps to Bring
This Timing Into Sync With European Applications

Notes to Document Thoughts and Analysis

Created by: Annotating
Patents & Corporate
Documents
Group: All Patents and
Documents Studied

Notes Provide Recorded, Indexed
Knowledge for Future Reference by
Oneself and Other Colleagues

The screenshot displays the DocuTelligence software interface. The main window shows a patent document titled "United States Patent 114". The document text includes a "BIBLIOGRAPHY" section with references to other patents and a "METHOD" section describing a "COMMUNICATIONS SERVICE APPARATUS". Annotations are visible in the right margin, including a note about "Aurigin Smart Patent Document being annotated" and a note about "Patent Being Annotated". A "New Document Annotation" dialog box is open, prompting the user to enter a title and a description for the new annotation. The interface also shows a list of documents on the left and a search bar at the top.

Implication: The "Document Trail" of the Invention Is Started at the
Same Time the Idea Is Researched, Giving Early Priority Dates.

0001-73.vsd/16

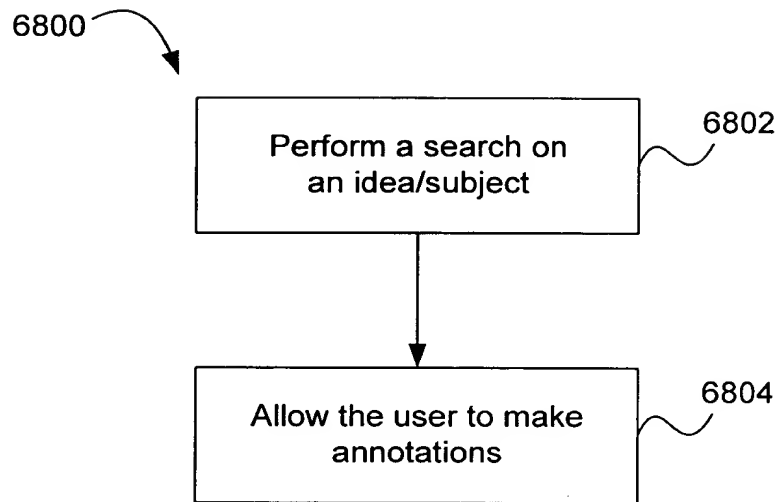


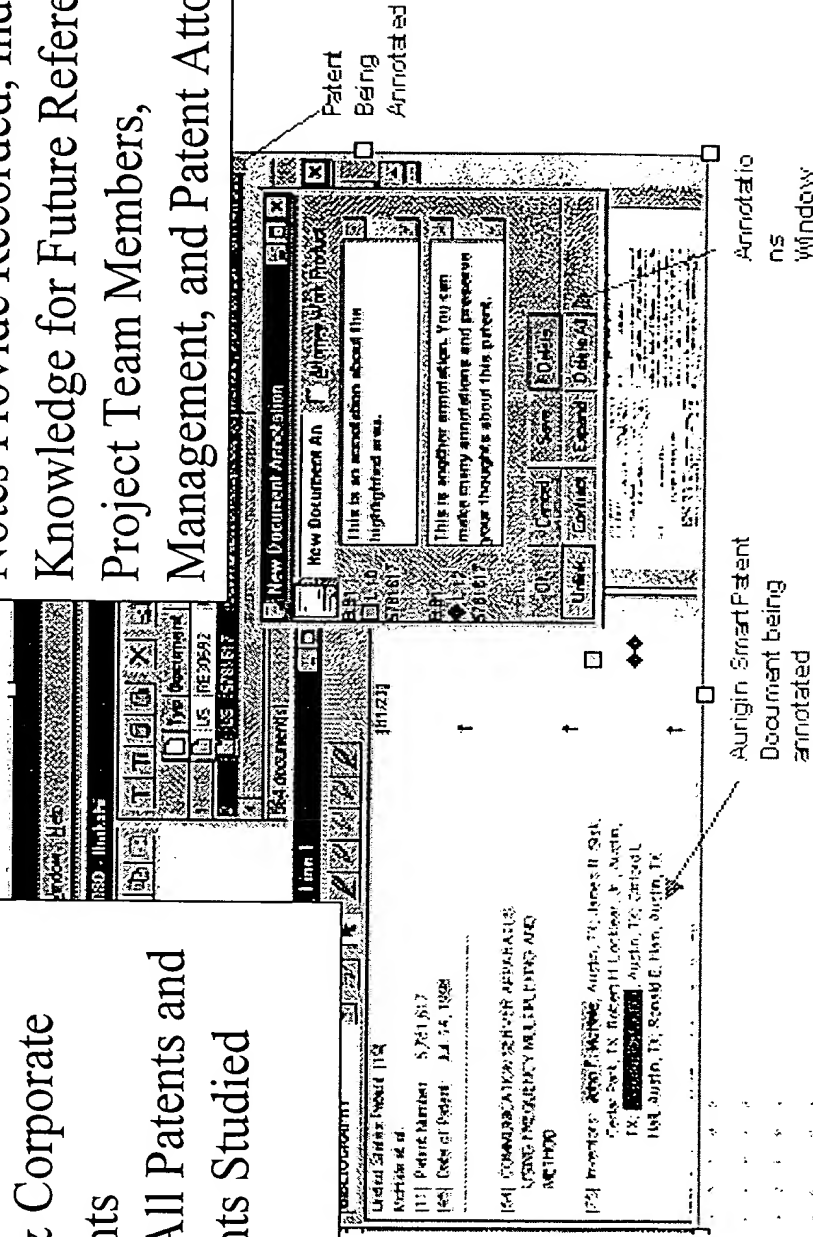
FIG. 68

Tool #20

Notes to Document Thoughts and Analysis

Created By: Annotating
Patents & Corporate
Documents
Group: All Patents and
Documents Studied

Notes Provide Recorded, Indexed
Knowledge for Future Reference by
Project Team Members,
Management, and Patent Attorney.



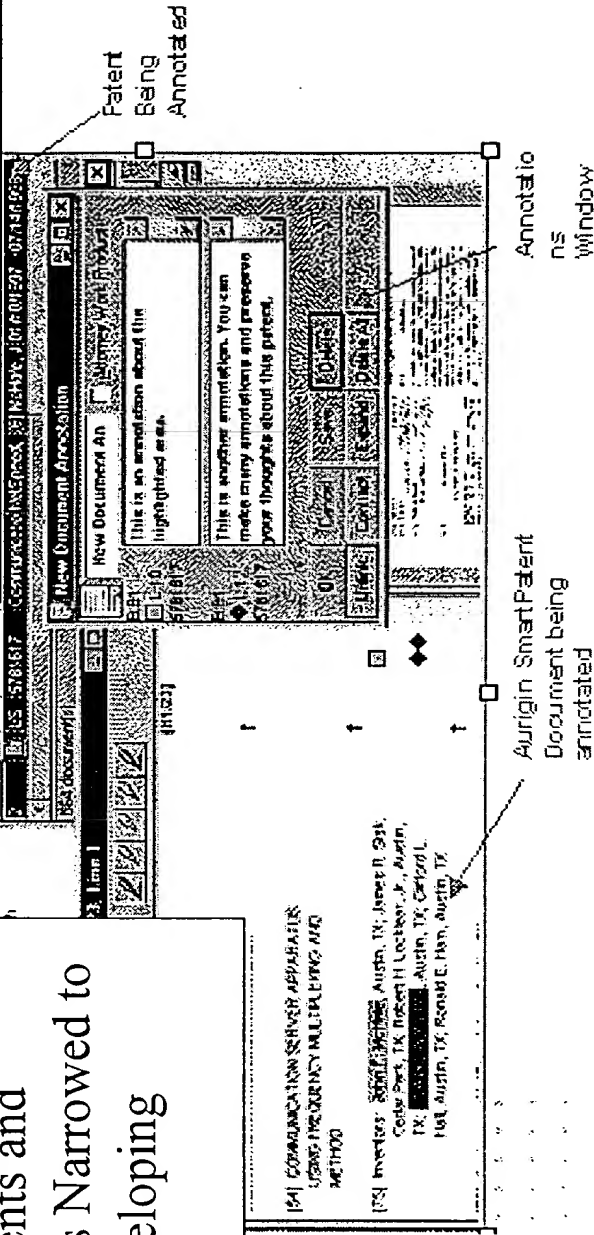
Implication: Documentation of Continuous Effort to Reduce the Idea to
Practice and Obtain Patent Protection Is Created.

002040-19551560 Tool #50

Notes to Document Thoughts and Support U.S. Patent Prosecution and Foreign Filings

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Patents & Corporate
Documents
Group: Patents and
Applications Narrowed to
Reflect Developing
Product

Notes Provide Recorded, Indexed
Knowledge for Reference by
Inventors and Patent Attorney.



Recorded, Indexed Knowledge Used for Expedient Patent
Application Preparation, Reducing Cost and Time

Tool #55

Notes to Document Meeting Thoughts and Analysis

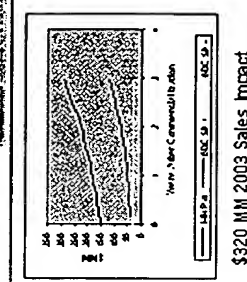
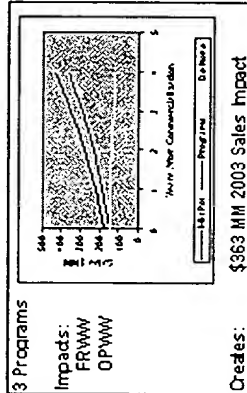
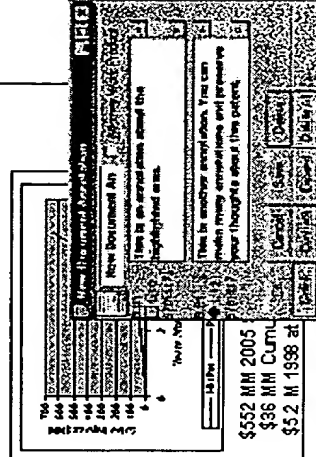
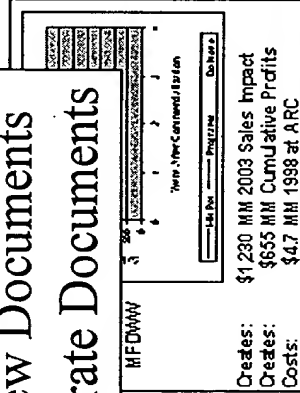
1998 PROGRAM PORTFOLIO

Created by: Annotating
Portfolio Review Documents
Group: Corporate Documents

Division Region

Activity

Requires New Mfg/Sales Capability



Annotations Provide Recorded, Indexed Knowledge for Future
Reference by Project and Portfolio Review Teams

Implication: Decision Assumptions Available for Future Reviews
Improves Decision Quality

Filing Date:

Text Search:

☒ Use Natural Language Expansion

Search in:

☒ Entire Document

☐ Abstract Only

☐ Claims Only

FIG. 75